12/27/85 U5930-1

Arkansas Business and Economic Review

A Publication of the University of Arkansas

Volume 18, Number 2, 1985

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An Economic Forecast for Arkansas Through 1986

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Economic Education: A Continuing Commentary

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Selected Arkansas and U.S. Economic Indicators

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Published Quarterly by
Bureau of Business and Economic Research
College of Business Administration
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Fayetteville, Arkansas 72701

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AN ECONOMIC FORECAST FOR ARKANSAS THROUGH 1986

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In July, the Bureau staff mailed a questionnaire on economic conditions to 226 Arkansans who practice with, theorize about, advise on, or closely follow economic events and trends on a regional, state, or national basis. Those surveyed constituted a purposive sample which included Arkansas businessmen, academics, and public officials. Eighty-nine useable returns were obtained for a response rate of 39 percent which, without follow-up, is statistically acceptable. The cover letter and the questionnaire itself are shown in Exhibits 1 and 2, respectively.

In Exhibit 2, entered beside each subitem of items 1 through 13 and 18 through 20 is the percentage distribution of responses for the item. The figures shown in item 16, continuing recovery, are the respective cumulative percentages for those who felt there was less than a 50 percent chance, those who felt there was at least a 50 percent chance, and those who felt continuation was a sure thing. Note that the at-least-50-percent figure includes the 100 percent bracket. Two response figures are shown for each subitem of items 14, 15, and 17. The first number relates to the percentage of responses which ranked the subitem in the highest category. The second (parenthetical) number shows the cumulative percentage of being listed in any priority. Item 17 did permit more than one choice and many responses included three categories, hence the second figure. Note that percentage totals may not equal 100 because of rounding.

In general, this "expert" forecast is optimistic. For example, item 16 shows that 84 percent felt there was at least an even chance that the economic recovery would extend through 1985 and a substantial majority, 67 percent, indicated at least an even chance for continuing through calendar 1986. Incidentally, the latter figure is 2 percentage points better than the next year's estimate from last year's survey.[1] Checking item 13 shows that estimates from last year's survey indicated that 26 percent felt the Dow Jones Industrial Average would remain above 1300 in 1985. This year's estimate for 1986, shows that 60 percent of the respondents felt the average would be at least 1300 and 17 percent bullishly indicated the average would at least break 1400.

Other indications of optimism for 1986 are found in item 5a, residential construction, and item 12, annual personal income. A substantial majority feel that wages, item 1, will stay about the same; consumer loans, item 2, are expected to rise; and investment funds, item 3, also should rise. Price level, item 4, shows that 90 percent think that inflation will remain at the level of 5 percent or less; sales, item 6, show that a majority expect an increase; and the unemployment rate, item 7, shows that a majority feel it will not exceed 8 percent while 49 percent think that the civilian labor force, item 8, will grow. Issues, item 14, show a large majority cite the budget deficit as the primary problem ahead. This reflects an increased emphasis of 14 percentage points over the indication in last year's survey that the budget deficit was the primary problem ahead. The deficit again rates highly as the principal economic problem, item 15, and also reflects on intensification of focus from last year's primary choice. The reduction of unemployment, item 17, shows no concensus although "let the price system regulate the market," at 39 percent, amassed a plurality of 12 points over the next higher subitem. This result was a lowering of last year's conviction at 55 percent that the price system could effect the reduction.

Finally, items 18, reduce deficit, 19, public education, and 20, attraction of industry, all show substantial majorities. The choice for deficit reduction is the combination of spending cuts and tax increases; public education is not seen as being secured in the future by the existing 1 percent sales tax; and the attraction of industry is not thought to be overemphasized by the State.

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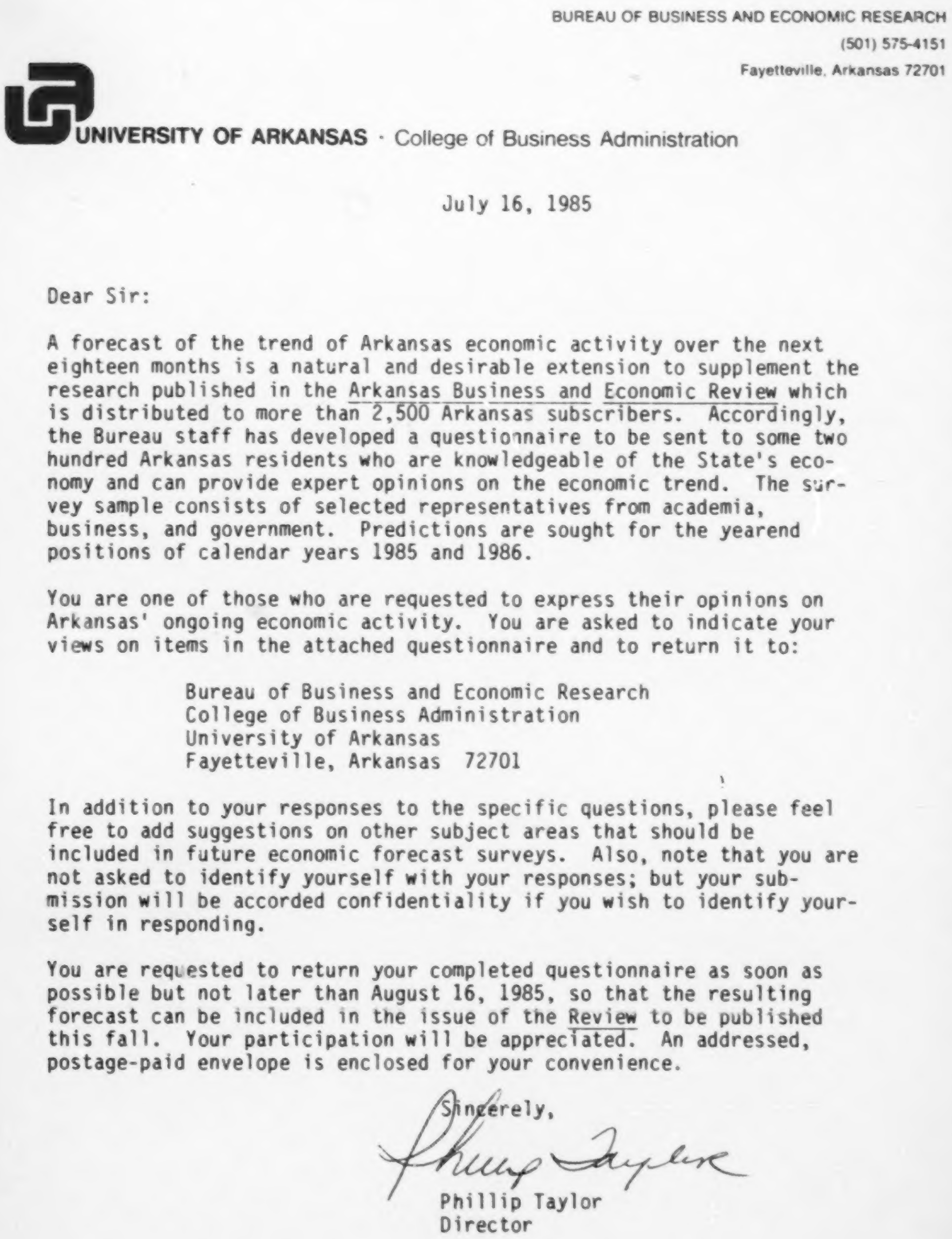
[1] Harry French and Betty Weeks, "An Economic Forecast for Arkansas Through 1985," *Arkansas Business and Economic Review*, Vol. 17, No. 3, pp. 20-26.

EXHIBIT 1



BUREAU OF BUSINESS AND ECONOMIC RESEARCH
(501) 575-4151
Fayetteville, Arkansas 72701

UNIVERSITY OF ARKANSAS · College of Business Administration

July 16, 1985

Dear Sir:

A forecast of the trend of Arkansas economic activity over the next eighteen months is a natural and desirable extension to supplement the research published in the *Arkansas Business and Economic Review* which is distributed to more than 2,500 Arkansas subscribers. Accordingly, the Bureau staff has developed a questionnaire to be sent to some two hundred Arkansas residents who are knowledgeable of the State's economy and can provide expert opinions on the economic trend. The survey sample consists of selected representatives from academia, business, and government. Predictions are sought for the yearend positions of calendar years 1985 and 1986.

You are one of those who are requested to express their opinions on Arkansas' ongoing economic activity. You are asked to indicate your views on items in the attached questionnaire and to return it to:

Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701

In addition to your responses to the specific questions, please feel free to add suggestions on other subject areas that should be included in future economic forecast surveys. Also, note that you are not asked to identify yourself with your responses; but your submission will be accorded confidentiality if you wish to identify yourself in responding.

You are requested to return your completed questionnaire as soon as possible but not later than August 16, 1985, so that the resulting forecast can be included in the issue of the *Review* to be published this fall. Your participation will be appreciated. An addressed, postage-paid envelope is enclosed for your convenience.

Sincerely,

Phillip Taylor

Phillip Taylor
Director

EXHIBIT 2

ECONOMIC CONDITION SURVEY

Part I: Estimated Key Economic Trends as of calendar yearends 1985 and 1986

Please indicate the phrase which most nearly corresponds with your views. As a point of reference, unless specified otherwise, all change is to be estimated for the 1985 and 1986 yearend levels (base = yearend 1984).

1. Wage rates in real terms in Arkansas will be:

1985		1986	1985		1986
1	Down	3	31	Up	43
68	About the Same	53	0	No Opinion	1

2. Total consumer loans in Arkansas will be:

1985		1986	1985		1986
1	Down	5	67	Up	69
32	About the Same	25	0	No Opinion	1

3. Availability of capital investment funds for expenditure in Arkansas on plant and equipment will be:

1985		1986	1985		1986
6	Down	10	47	Up	53
47	About the Same	33	1	No Opinion	3

4. Price level for consumers in Arkansas will be:

1985		1986	1985		1986
1	Down more than 1%	0	42	Up 1% to 3%	38
1	Down 1% or less	1	30	Up 3% to 5%	41
20	About the same	5	0	Up more than 5%	9
5	Up 1% or less	5	1	No Opinion	1

5a. Value in current dollars of new residential construction in Arkansas will be:

1985		1986	1985		1986
10	Below 1984 level	9	56	Above 1984 level	61
33	About the same	27	1	No Opinion	2

b. Arkansas' residential construction experience, relative to that of the U.S., will be:

1985		1986	1985		1986
23	Worse	20	54	About the Same	61
23	Better	20			

6. Level of commerical-industrial activity in Arkansas as measured by retail sales will be:

1985		1986	1985		1986
7	Down	7	52	Up	57
38	About the Same	34	2	No Opinion	2

7. Unemployment rate in Arkansas (7.9% in April 1985) will be:

1985		1986	1985		1986
0	Less than 7	14	3	Between 9 & 10%	7
75	Between 7 and 8%	44	0	Over 10%	1
23	Between 8 and 9%	33	0	No Opinion	1

8. Civilian labor force (1,023,100 in April 1985) in Arkansas will be:

1985		1986	1985		1986
6	Down	2	36	Up	49
57	About the same	47	1	No Opinion	2

9. Cost of transportation services in Arkansas will be:

1985		1986	1985		1986
5	Down	2	39	Up	60
48	About the same	30	8	No Opinion	8

10. In comparison with the U.S. average, Arkansas' total population change will be:

1985		1986
13	Below the U.S. average	8
48	About the same as the rest of the country	47
39	Above the U.S. average	45

11. Total farm cash receipts for 1985 and 1986 in current dollars (current dollar cash receipts from Arkansas farm marketings totaled $3,000.0 million in 1983 and $3,117.0 million in 1984) will:

1985		1986
35	Decrease from the 1984 current dollar level	30
48	Remain about the same as 1984 current dollar amount	30
16	Increase from the 1984 current dollar level	40

12. With respect to the 1984 total of $22,840 million, total annual Personal Income for Arkansans in real dollars (current 1985 and 1986 dollars adjusted for inflation to 1984 dollars) will:

1985		1986	1985		1986
3	Fall	7	48	Rise	51
48	Remain about the same	39	0	No Opinion	3

13. The Dow Jones Industrial Average (approximately 1335.0 on July 15, 1985) will be:

1985		1986	1985		1986
0	Less than 1000	2	48	Between 1300 & 1350	25
0	Between 1000 & 1100	1	31	Between 1350 & 1400	18
3	Between 1100 & 1200	4	1	Between 1400 & 1450	15
1	Between 1200 & 1250	9	0	Over 1500	2
13	Between 1250 & 1300	18	3	No Opinion	6

14. Please rank in descending order five (5) issues, that you feel will exert the most influence on the U.S. economy (1 = most significant).

1985		1986
2 (16)	Inflation	5 (7)
75 (19)	U.S. budget deficits	76 (20)
1 (1)	Weather effects on agriculture and energy usage	1 (1)
0 (0)	Ecological and environmental pollution	0 (1)
9 (15)	Foreign competition in domestic markets	7 (11)
0 (2)	Foreign investment in domestic markets	0 (3)
0 (4)	Unemployment	0 (4)
0 (3)	Energy supply and cost	1 (3)
1 (1)	High valued dollar in international exchange	1 (9)
4 (18)	Balance of trade deficits	2 (17)
4 (11)	Interest rates	5 (12)
0 (3)	New acts and laws by Congress	0 (4)
2 (6)	Money supply	2 (6)
0 (2)	International commitments and developments	0 (1)
0 (0)	Other	0 (0)

15. In our society, the three (3) most serious economic problems will be (1 = most serious).

1985		1986
10 (17)	Foreign competition in domestic market	8 (15)
1 (3)	Unemployment	1 (3)
1 (4)	Inflation	2 (7)
5 (10)	Declining productivity and real growth	6 (9)
5 (15)	Balance of trade deficits	4 (18)
73 (31)	U.S. budget deficits	71 (30)
5 (9)	Interest rates	7 (10)
1 (9)	High valued dollar in international exchange	1 (7)
0 (3)	Other	0 (1)

List: ______________________________

16. What is the percent chance that the recovery in the domestic economy will continue through 1985? 16-84-4 %, through 1986? 33-67-0 ?

17. With the recent U.S. experience as regards inflation and unemployment, what approach is recommended in order to reduce unemployment? (If more than one choice, rank in descending order from 1 = best approach.)

1985		1986
1 (4)	Reinstitute the military draft	1 (3)
5 (3)	Create more government "public service" jobs	4 (3)
4 (4)	Increase public works spending	3 (4)
27 (25)	Institute tax credits to stimulate employment	28 (25)
36 (30)	Let the price system regulate the market	39 (31)
9 (10)	Sponsored up-grading job training programs, including OJT	6 (10)
0 (1)	Broaden entitlement programs	0 (1)
8 (16)	Eliminate minimum wage legislation on teenagers	9 (17)
1 (1)	Increase defense spending	1 (1)
9 (6)	Other	10 (7)

List: ______________________________

Part II: Undated Current Programs/Developments

Please indicate the phrase that best describes your opinion.

18. The best way to reduce/eliminate the federal budget deficit is:

14 Spending cuts only
62 Large spending cuts and moderate tax increases
18 Balance cuts and taxes
5 Moderate spending cuts and substantial tax increases
0 Tax increase only
1 No opinion

19. With a 1 percent sales tax already being levied, Arkansas has taken care of public education for the foreseeable future.

34 Agree
61 Disagree
5 No opinion

20. The attraction of industry to Arkansas as a state economic strategy is being overemphasized.

28 Agree
69 Disagree
3 No opinion

MEDICAL EXPENSE DEDUCTION VS. MEDICAL CREDIT: A COMPARATIVE ANALYSIS

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INTRODUCTION

Perhaps the nature of man leads him to readily criticize the shortcomings of his government. Yet, all too often the government presents a target analogous to the posture of an ostrich with its head stuck in sand. So it seems in the case of the change in the medical expense deduction wrought in the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). However, it is not enough to criticize—for criticism alone is destructive. Rather, the critic should stand ready to propose a better alternative if he wants the criticism to carry greater credibility. Therefore, this paper presents the different policies that have brought the tax status of the medical expense deduction full circle, analyzes the effects of the changes caused by TEFRA, and proposes a solution that seems to satisfy the various policies better than the current provisions of the law.

ORIGINAL PROVISION

The Revenue Act of 1942 provided individual taxpayers with their first opportunity to take into consideration unreimbursed medical expenses in the computation of their federal income tax. The 1942 Act amended the 1939 Code to permit individual taxpayers to deduct unreimbursed medical expense to the extent these expenses exceeded 5% of **net income** for tax purposes computed without regard to the medical expenses.[1]

The 1939 Code was further amended by the Individual Income Act of 1944. The 1944 Act provided that medical expenses would be deductible to the extent that they exceeded 5% of **adjusted gross income**. Although this change resulted in a slight reduction in the amount of medical expense an individual might be allowed to deduct, the amendment was introduced to afford a measure of simplification in the computational aspects of the deduction.[2]

HELP THE POOR

When the 1954 Code was enacted, Section 213 provided for a reduction in the percentage limitation for the medical expense deduction from 5% to 3% of adjusted gross income. This reduction of the percentage limitation was enacted to afford a greater amount of relief to low-income taxpayers. The reduction in the percentage limitation was expected to permit taxpayers to deduct not only unusually large medical expenses, but also was expected to permit the deduction of many routine medical care costs. In his remarks before the House of Representatives in support of passage of the 1954 Code, Ways and Means Committee Chairman David Reed gave a typical example of the justification being offered for lowering the percentage limitation: "a taxpayer with $3,000 of adjusted gross income who has medical expenses of $150 would be entitled to deduct $60 of medical expenses under the bill, whereas in the present law he is not entitled to deduct a penny of his medical expense."[3]

ENCOURAGE THE PURCHASE OF MEDICAL INSURANCE

Legislation enacted in 1965 permitted the individual taxpayer to deduct one-half of the costs of medical insurance, to the extent of $150. The remaining one-half, or the excess of such premiums up to $150 were to be added to the other medical expenses which were subject to the 3% of adjusted gross income limitation.[4]

When the special deduction for medical insurance was proposed for addition to the Code, an argument was advanced that such a provision would furnish an incentive for individual taxpayers to purchase their own insurance. Some felt that without the special deduction, the medical expense of those individuals not covered by insurance would tend to fluctuate markedly over time. Further, such a pattern of medical care costs was felt to be more likely to exceed the 3% limitation, and to result in deductible medical expenses than the pattern of medical expenses experienced by an insured taxpayer. Medical insurance was thought to yield a more stable pattern of medical expenses to be borne by the individual taxpayer. Due to the nature of these unreimbursed medical expenses, arguments were advanced which asserted that neither these medical expenses nor the premiums paid for medical insurance were likely to exceed the 3% limitation.[5]

INSENSITIVITY TO HIGH MEDICAL COSTS?

Prior to the passage of TEFRA, one proposal which was made for changing the medical expense deduction was to raise the percentage limitation from 3% to 10% of adjusted gross income, and the special deduction for the cost of medical insurance was to be left unchanged. The range of the types of medical costs which may be deducted under Section 213 is broad, and the procedural aspects of claiming a deduction are necessarily complex—often requiring difficult distinctions to be made between personal expenses and expenses qualifying for deduction.[6]

In proposing an increase in the percentage limitation, Congress was mindful both of the complexity of Section 213, and the growth in its use by individual taxpayers. The explosion of the cost of living in the United States in recent years has generally been outpaced by increases in the cost of health care. Congress concluded that individual taxpayers were able to use the provisions of Section 213 to receive partial relief from the increasing costs of health care. The ability to procure such relief was viewed as an incentive to use the medical expense deduction; such use was thought to exacerbate the problem of rising health care costs. The Congress, therefore, sought to limit the use of the medical expense deduction by dramatically increasing the percentage limitation.[7]

Senator Dole supported softening the effects of the proposed increase in the percentage limitation, and was hopeful that such a softening would increase support for a change in the medical expense deduction. Senator Dole's proposal would have limited the increase in the percentage limitation from 3% to 7% of adjusted gross income; however, the special deduction for medical insurance premiums was to be allowed to drop from $150 to $100. Federal tax expenditures for Section 213 were expected to be approximately the same under the proposed alternative. Ultimately, a compromise was developed which limited the increase in the percentage limitation from 3% to 5%, but the special deduction for medical insurance premiums was sacrificed in order to obtain such a small increase.[8] The result of the change in the medical expense deduction engendered by TEFRA effectively returned the available deduction to the parameters of the 1944 Individual Income Act.

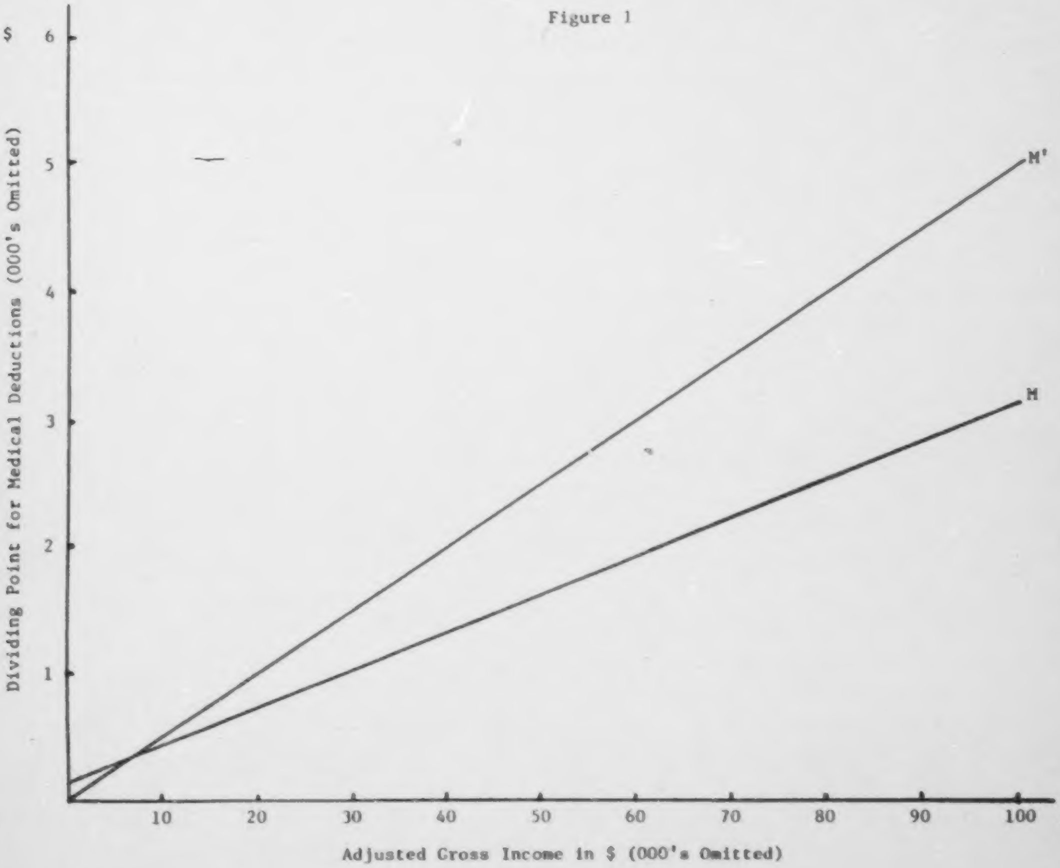
ANALYSIS OF TAX BURDEN

An analysis of the tax burden created by the enactment of TEFRA is presented below. The starting point for this analysis is a review of the provisions under the tax law for the medical expense deduction for years prior to 1983, and the new provisions under TEFRA which take effect in 1983. In order to facilitate a rapid understanding of these two provisions, a graph is presented in Figure 1 which permits a visual comparison.

Prior to TEFRA, Internal Revenue Code Section 213(a) provided a two part formula for the deduction of medical expenses other than medicine and drugs. That deduction was: (1) an amount equal to one-half of insurance premiums for medical care up to $150 (i.e. up to $300 of premium expense); and (2) the amount by which medical expenses paid during the year exceed 3% of adjusted gross income. For purposes of this analysis, the assumption is made that all taxpayers would have medical insurance premiums of at least $300. Therefore, in Figure 1 curve M, which shows the function of the deduction permitted prior to TEFRA, intersects the vertical axis at $150.

In Figure 1 curve M shows the function of the medical expense deduction permitted beginning in 1983 under TEFRA. Since TEFRA amends the prior law by eliminating the separate deduction for health insurance premiums (though they continue to be classified as a medical expense under TEFRA) this curve intersects the origin of the graph. Also, TEFRA requires that medical expenses exceed 5% of ad-

Figure 1

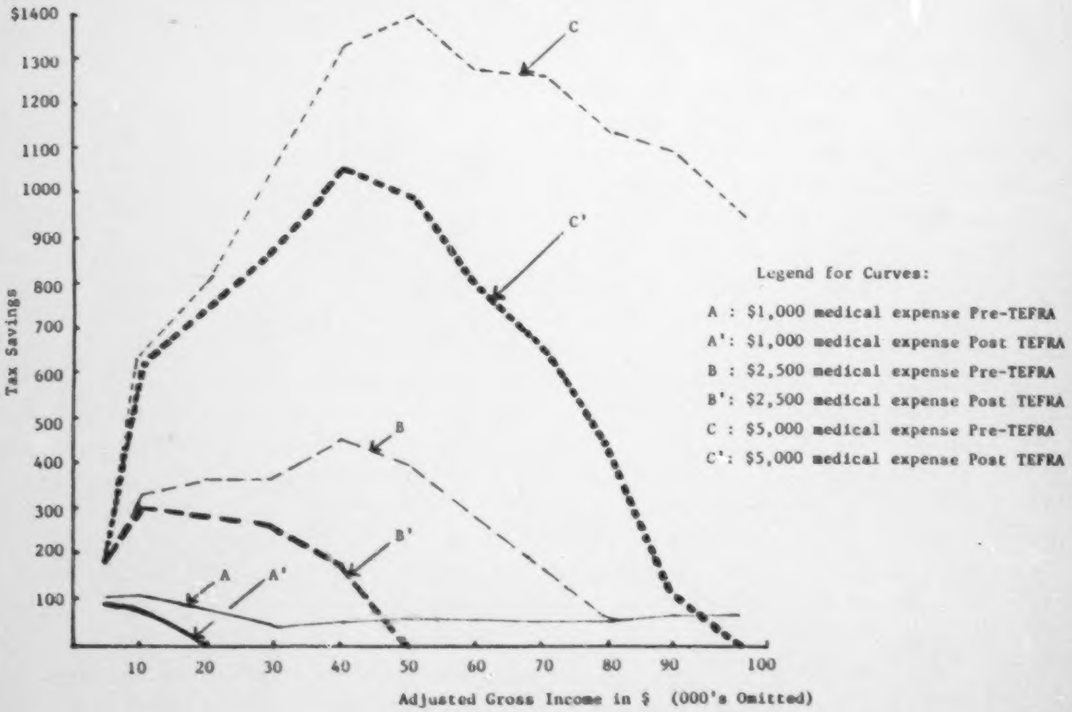


justed gross income. Thus, the curve M' rises at a much greater rate than curve M. In Figure 1 the horizontal axis is labeled "adjusted gross income" and the vertical axis is labeled "dividing point for medical deductions." The significance of a point on the vertical axis is that for a taxpayer of the corresponding adjusted gross income the point represents the amount of medical expenses below which the expenses are **not** deductible and only medical expenses above the point are deductible. Since both laws provide for a constant percentage deduction, the "curves" reflect the linear nature of these relationships.

A second stage of analysis derives from an inquiry as to how the new provisions in TEFRA would impact the burden of taxation. It seems obvious that the increase from 3% to 5% in the threshold for allowable deductions would increase the burden upon taxpayers. However, whether the impact upon a taxpayer at one level of adjusted gross income would be similar to the impact upon another taxpayer at a different level of adjusted gross income is less obvious.

In order to test this relationship, a simulation was undertaken for medical expenses—in fact, three amounts of medical expense were selected for simulation: $1,000; $2,500; and $5,000—to determine the tax burden via calculations of tax savings for the assumed amounts of medical expenses for taxpayers at $10,000 increments of adjusted gross income from $10,000 to $100,000. In addition, the amount for a taxpayer with adjusted gross income of $5,000 was plotted. In order to focus upon the tax effect of the respective provisions, the assumption was made that the medical expense deductions in every case were in excess of the zero-bracket amount. Also, tax rates for 1983 were used. Finally, the taxpayers chosen for simulation were assumed to be married filing joint returns. The results of the simulation are shown in Figure 2.

Figure 2



The six curves may be identified as follows:

A : Tax savings pre-TEFRA for $1,000 medical expense
A': Tax savings under TEFRA for $1,000 medical expense
B : Tax savings pre-TEFRA for $2,500 medical expense
B': Tax savings under TEFRA for $2,500 medical expense
C : Tax savings pre-TEFRA for $5,000 medical expense
C': Tax savings under TEFRA for $5,000 medical expense

The shapes of the six curves produced from the simulation were somewhat surprising especially considering the linear relationship of the formulas for tax deduction! The most immediate question to be considered is: What accounts for the unexpected shapes of the curves? The most plausible answer seems to be: although the portion of the medical expense that is deductible declines as adjusted gross income rises, the increase in the graduated tax rates **more than offsets** the loss in deduction up to the peak of the respective curves.

A comparison of the pre- and post-TEFRA curves for each given amount of medical expense does show the obvious reduction in tax savings for post TEFRA provisions. However, the authors consider the comparison of curves A, B, and C (and A', B', and C') with each other more interesting than the comparison of pre- and post-TEFRA at each assumed amount of medical expenses. Perhaps, the most significant aspect of these relationships is not what they tell, but the questions that they raise. TEFRA brings the taxpayer back to the provisions of the Individual Income Act of 1944 in these two respects: (1) no separate deduction for medical insurance premiums versus other medical expenses, and (2) deduction is permitted only to the extent that they exceed 5% of adjusted gross income.

Considering that the rationale in reducing the limitation from 5% to 3% was purported to be to provide relief for low income taxpayers, one may inquire as to whether that objective was met. If the answer is "yes," then the implication in returning from 3% back to 5% would be that low income taxpayers would be hurt. A study of the curves in Figure 2 lead to these conclusions: (1) a reduction in the limitation from 5% to 3% would help low income taxpayers; (2) a reduction in the limitation from 5% to 3% would help high income taxpayers more than low income taxpayers; and (3) an increase from 3% to 5% in the limitation would cause an opposite effect in conclusions (1) and (2) above.

The conclusion that high income taxpayers benefit more than low seems somewhat incongruous because: (1) the natural inference of a stated policy to help low income taxpayers would seem to be that they will receive the greatest benefit, or that other taxpayers have less need for the benefit; and (2) this result seems to be at odds with the provision of graduated tax brackets that require high income taxpayers to bear a proportionately greater share of the tax burden.

The rationale and arguments presented above in favor of encouraging the purchase of medical insurance by the provision of a separate deduction for one-half of the premiums for such insurance have no readily discernible flaw and are accepted at face value. However, the rationale for terminating this benefit and raising the limitation from 3% to 5% does not fare as well. That is, the notion that the medical expense deduction exacerbates the problem of rising health care costs seems somewhat faulty. Granting that taxpayers were able to receive partial relief from the increasing health costs via tax deductions, it seems to require a twist of logic to presume that without the deduction some change in the cause of rising health costs would be effected. This presumes that taxpayers may control the bulk of the health cost increases. Rather, the increased medical expense deductions seem to be the result of the rising health costs!

MEDICAL TAX CREDIT: A PROPOSED SOLUTION

Tax credits have been utilized for numerous purposes in the Internal Revenue Code. Arguably, the substitution of a tax credit, such as 10% of medical expenses, in lieu of past and present provisions for deductions would represent an improvement in tax policy because:

(1) deductions help taxpayers in high tax brackets more than those in low brackets while a tax credit gives equal benefits to taxpayers in all brackets; thus, low income taxpayers should benefit relatively more by this change than high income taxpayers, and

(2) a properly drawn tax credit schedule should make taxpayers aware of their total uninsured medical expenses, and the relatively small part of them that is offset by a tax credit.

In order to illustrate the benefits of the proposed change to a system of tax credits from the current provisions of Section 213, Table 1 has been constructed to permit a comparison of these two approaches. The example assumes that each set of taxpayers is married filing a joint return, and each has two dependent children—therefore entitled to a total of four exemptions. The pairs of taxpayers have $12,000 and $36,000 adjusted gross incomes respectively, and each pair incurs $2,500 of unreimbursed medical expenses during the current year. It is further assumed that the low income family has $2,400 of deductible expenses other than medical expenses, which leaves $1,000 of zero-bracket amount to be exceeded before any deductible expense will be permitted. The family with the higher income is assumed to have deductible expenses in excess of the zero-bracket amount other than medical expenses, thus permitting the deduction of any medical expenses in excess of 5% of adjusted gross income.

The line entitled "Tax Savings" shows the advantage under the current law and assumptions made in favor of the high income taxpayers ($210 v. $125). This line also shows the equality between the taxpayers that would result under the proposed tax credit ($250 each). If each hypothetical pair of taxpayers incurred only $1,000 of medical expense, neither would have been able to realize any tax savings

TABLE 1

	Present Law		Proposed Law	
Taxpayers	Low Income	High-Income	Low-Income	High-Income
Adjusted Gross Income	$12,000	$36,000	$12,000	$36,000
Medical Expense Incurred	2,500	2,500	2,500	2,500
Tax Deduction	900[a]	700[b]	--	--
Proposed Credit	--	--	250[d]	250[d]
Tax Savings	125[c]	210[c]	250[c]	250[c]

Explanations of Table Amounts, based upon 1983 rates:

[a] $2,500 medical expenses − 5%($12,000) = $1,900 − $1,000 unused zero-bracket amount.

[b] $2,500 − 5%($36,000) = $700 (100% deductible, since taxpayer is assumed to have other deductible expenses in excess of the zero-bracket amount).

[c] As compared to no medical expense deduction.

[d] Proposed 10% tax credit for medical expense.

under the present provisions of Section 213. The low income taxpayer would not have had excess itemized deductions, and the 5% floor would have exceeded the medical expenses incurred by the high income taxpayer. Of course, an almost infinite number of possible combinations are possible, but these examples demonstrate the claimed advantages and the removal of the adverse impact of graduated tax brackets upon the stated desire of Congress to help low-income taxpayers.

CONCLUSION

The return of the medical expense deduction in important essentials to what it was about 40 years earlier is significant because changes over the years were predicated upon different policies. At least some overt consideration of possible conflicts between policies seems to be in order. Perhaps a solution similar to that proposed above or a better one would have resulted if adequate attention had been given to the legislative history of the medical expense deduction.

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[1] 1942-2, *Cumulative Bulletin*, p. 705.

[2] 1944, *Cumulative Bulletin*, p. 859.

[3] 100 *Congressional Record* 3422.

[4] 1965-2, *Cumulative Bulletin*, p. 742.

[5] *Ibid*.

[6] *Internal Revenue Acts: Text and Legislative History*, West Publishing Company, St. Paul, Minnesota, 1983, p. 41.

[7] *Ibid*.

[8] *Congressional Quarterly Almanac*, Volume XXXVIII, 1982, p. 38.

OBSERVATIONS ON BANK ENTRY INTO INSURANCE

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INTRODUCTION

A frequently discussed topic in the academic journals in recent months has been that of banks entering the insurance business. The subject is often presented under pseudonymous terms such as deregulation of financial services, full financial services, or integration of financial services. The phenomenon of banks getting into insurance is only a part of a much broader picture—a blurring of the historical distinction between the functions performed by financial institutions of every type as each invades what was once the sole province of the other. Given the size and profitability of the financial services market, the integration of financial and insurance services is a subject which understandably arouses strong emotions in the financial services community.

The subject of bank entry into insurance is not a purely academic one. It has great practical significance and should be of interest to every person in Arkansas and the United States who has a bank account, borrows money, or purchases protection against financial loss through an insurance contract.

Both the banking industry and the insurance industry are financial giants in Arkansas. There are currently 73 active national banks and 183 state-chartered banks in Arkansas. These 256 banks have assets in excess of $16 billion.[2] Banks are found in every city and in many smaller towns of the State. The banks have the advantage of strong regional and local identification, but they are not permitted at present to accept deposits or make loans outside the State, a factor which tends to limit their growth potential. Banks in Arkansas are smaller on the average than banks in many other states which have a larger population base, higher per capita incomes, and banking laws that are more favorable to large-scale asset accumulation by banks.

In contrast to the situation in banking, there are relatively few insurance companies domiciled in Arkansas. There are only 57 life and health insurance companies and 20 property and casualty companies with corporate headquarters in the State. However, a large number of insurance carriers (almost 1,400) that are chartered out of state distribute their products in Arkansas.[3] Unlike banks, they are unfettered by laws which prohibit interstate sales of their products. Many of these so-called "foreign" companies are much larger than any of the banks in the State.

Much of what is said in this article is not Arkansas-specific. However, the implications of a struggle by banks and insurance companies for the financial consumer's dollar are as relevant for Arkansas as for any other state. It could result in a fundamental change in the banking and insurance industries in Arkansas and in their relationship to the rest of the State's economy. It could help determine how the Arkansas economy will be structured in the future and how the long-run financial needs of the economy will be met. It could also have great impact on financial institution solvency and regulation in the State. Finally, a contest between the State's major financial institutions in the financial services arena could help determine which financial services will be dispensed in Arkansas, how much Arkansans will pay for those services, how and where credit will be delivered, and who will be the major provider of financial services and credit in Arkansas in the future.

THE CONTROVERSY

Essentially, the controversy is whether banks should be allowed to become involved in the insurance business, that is, to sell and/or underwrite insurance. To this point, banks' authority to engage in insurance has been limited primarily to the vending of credit insurance in connection with a loan transaction. In addition to selling credit insurance, banks have been allowed to exercise certain additional limited insurance powers in communities with fewer than 5,000 people where there was no other insurance presence. Bankers say that at a minimum they should be permitted to engage in the marketing of insurance, and some insist that they should have virtually unrestricted freedom to enter the business of full-time insurance underwriting. Bankers feel that the consumer of financial services will be the ultimate winner under such a permissive arrangement since better products, improved service, and a higher yield on investment products would inevitably result. Equally predictable, most property and casualty insurance companies, as well as producer groups, oppose bank-insurance combinations. They see little consumer benefit arising from serpentine legal maneuvering and lobbying by banks who they feel are trying to advance the economic interest of banks under the current regulatory, legislative, and judicial processes. In short, insurance spokesmen feel that the present separation of banking and insurance is amply justified and that it best serves the public interest.[4]

There is no certainty as to what the ultimate outcome of the controversy will be. Some insurance trade associations, as well as a few executives of insurance carriers, seem to feel that the intrusion of banks into the insurance business is a foregone conclusion and that the insurance industry should accept that fact and lobby for the most favorable legislation possible. They feel that the best alternative is to begin to examine marketing techniques that will help them compete fairly if enabling legislation is passed. However, most insurance spokesmen are arguing vigorously for retention of the current division of duties between depository-type intermediaries and insurance-type intermediaries, and for a reaffirmation of congressional authority over the activities of bank holding companies. They point out that banks have problems unique to that industry and might not choose to enter the insurance business on a massive scale, even if permitted to do so. For those who do, attitudinal and cultural reasons may prevent them from getting a significant share of the market immediately.[5]

THE CONSUMER

An often-forgotten factor in this equation is the feelings of the financial services consumer. Consumer concerns are not expressed with the singularity of the concerns of financial institutions and they are not as easily discerned or expressed. However, they should be addressed in any legislation regarding the integration of financial services.

There are several cultural, socioeconomic, and technological trends that make the integration of financial services more feasible now than previously. Furthermore, there is some evidence that the consumer wishes to see more integration of financial services. The ongoing change in the financial services industry is at least partially consumer driven. Despite questions in some observers' minds about whether consumers would realize substantial benefit from integrated financial services, most people feel that the consumer's desire for value-oriented products and services is forcing the dismantling of the regulatory framework.

In the final analysis, attitudinal considerations of consumers will be as important as the economic concerns of the relevant financial intermediaries in determining whether and to what degree banking and insurance functions will be integrated in the future. Also, consumers will help determine which institutions will be the winners and the losers in the process.[6]

POLITICAL CONSIDERATION

In addition to public acceptance and economic expediency, there are very important political considerations involved in the controversy over whether banks should be allowed to underwrite and sell insurance. First, there will have to be a removal of traditional and longstanding barriers separating banks from insurance companies and other intermediaries. States, or more likely the federal government, will have to enact legislation empowering banks to gain a higher profile in the insurance business. Before such legislation is passed, one may be sure that the lobbying strengths of both banks and traditional insurance vendors will be tested. The American Banker's Association will continue its formidible promotional assault, pitted against the powerful lobbies of the insurance companies and marketing groups in what promises to be an interesting battle. The pressure will not likely abate and the fight is sure to escalate in the coming months. There is a good chance that the "clash of Titans" will result in a compromise that will remove some but not all of the regulatory barriers. However, there were no fundamental changes in federal law (including existing loopholes) regarding bank entry into insurance in the session of Congress just ended.[7]

INSURANCE ARGUMENTS

Insurance spokesmen have articulated their positions against banks entering their turf on the strength of the following arguments.

Banking and Commerce

For the past half century the federal government has adhered the principle of separation of banking and commerce under the theory that banks should not compete with the commercial sector, one of its sources of funds. Of course, there is no argument from insurance people with the fact that banking soundness is critical to economic stability and that we must have laws which guarantee the soundness of banks. (Many of the laws and regulations concerning banking grew out of the problem that faced the banking industry in the tumultuous 1930's, when banks were allowed to engage in many non-banking activities, and have largely to do with banking costs and risk taking.) However, lawmakers have also prohibited an undue concentration of financial power in banks and have passed laws which permitted and encouraged the growth of other financial intermediaries as well as the growth of nonfinancial firms in the commercial sector. Congress would be abrogating the philosophy of separation of banking and commerce if it permitted the banks to engage in the insurance business, and this might upset the current balance of financial power. Therefore, Congress should continue to proscribe bank entry into the insurance business and maintain the current separation of banking and commerce.[8]

Bank Insolvencies

Bank failures have increased in recent years under the weight of deregulation and increased competition. It might be unwise to permit banks to purchase insurance companies and/or agencies and accept additional risk—possibly to off-set losses in other areas—under existing arrangements. The blurring of distinctions could mean more risk for the consumer and small businesses alike. In particular, those banks involved in international lending should carefully weigh the consequences of pyramiding the risks of operating an insurance company upon current banking and financial risks. The recent experience of the Continental Bank of Chicago is a case in point.[9]

Special Role of Banks

Banks are the conduit through which the money supply is increased or decreased and through which monetary policy is implemented by the Federal Reserve System. Banks also serve as a source of liquidity and as the primary source of credit for the country. They are seen as a stablizing force in the economy. Because of their unique position, banks are accorded special privileges. For example, they may borrow from the government at low interest rates. Also, they are permitted to accept deposits of various kinds, have them insured by the federal government, and then turn around and loan them to whomever they choose. The special role which banks occupy in our economy should not be used to give them an unfair advantage over competitors who deposit money with them and whom they might purchase if they wish to do so.[10]

Market Concentration

There has been a surge in the number and variety of financial instruments available to the public as a result of consumer demand for top return on each dollar invested. This head-to-head competition for the savings dollar has worked to the advantage of the financial services consumer. New investment vehicles such as universal life insurance, asset management accounts, and money market funds are a direct result of this competition.

At the present time the insurance industry, as well as nonbanking depository intermediary industries, is less concentrated than the banking industry. Insurance industry observers fear that an increased integration of financial services through banks' diversification would result in an unhealthy degree of concentration in banking—perhaps giving the banks power to earn excess profits—that would be detrimental to the consumer. A financial system where banks perform traditional banking functions as well as underwriting insurance, and where a few banks could end up dominating the economy, may lead to a misallocation of resources and is fraught with danger. Furthermore, little benefit will accrue to consumers from the formation of financial services giants controlling the bulk of the consumers' investment dollar, encompassing savings, securities, insurance, etc. The consumer seeking professional guidance in insurance purchases might be at a disadvantage. Moreover, fierce competition could result. It is entirely possible that many providers of insurance products would not survive in the face of pressures on operating markets.[11]

Credit Leverage

Legislation now before Congress would permit banks to sell and underwrite insurance through holding company affiliates. The insurance industry fears that insurance customers will lose their bargaining position (which they say is inherently unequal in the first place) and the freedom to shop for insurance products in the conventional market if this law passes. That is, with "leveraged credit," banks will be in a position to combine loan transaction with the sale of insurance. A possible conflict of interest could develop.

The potential tie-in between bank loans and insurance sales could be accomplished in subtle ways. Even if no direct pressure were put on the consumer, he/she might wish to purchase the ancillary insurance to enhance the chances that a loan application would be approved. There is no way to fashion workable safeguards to prevent such pressure from being applied. Of course, one way to forestall the potential problems of such bank coercion would be the passage of laws which prohibit a bank-owned agent or broker from negotiating any insurance policy concerning property that is the subject of, or security for, a loan. In light of the lack of compelling need, particularly with insurance being readily available and price competition keen, allowing banks to sell insurance would be a mistake.[12]

As noted previously, there has been a trend toward financial services conglomerates in this country for some time. It is interesting to note that many of these combinations are not working as well as originally hoped. Of course, mergers or acquisitions have the potential for providing tremendous clout for the acquiring organization in terms of finances, personnel, management resources, and a customer base. However, efforts thus far by financial or nonfinancial organizations to diversify into nontraditional markets has produced mixed results. Examples where the results have been less than spectacular are the American Express purchase of the Fireman's Fund Insurance Company and the Sears operation of Allstate Insurance Company.[13] These situations raise serious questions about whether large non-insurance acquisitors have the necessary expertise to effectively market and underwrite insurance products.

THE BANKING VIEWPOINT

Banks have formulated powerful arguments for the amalgamation of the banking and insurance industry. They make the following points:

Level Playing Field

Banks argue that no one financial intermediary should have a competitive edge—there should be no excessive trade-off in terms of freedom and constraints—over another due to arbitrary regulatory or legislative actions. There are several players in the financial services arena who have the capacity to offer fully integrated, multi-product distribution systems. Unnecessary and inappropriate regulations must be jettisoned so that banks can compete not only with insurance companies but also with several highly successful newcomers in the financial services industry. In order to remain profitable, banks feel that they must halt the alarming loss of customers to these non-bank competitors. They feel that they must have a "level playing field" so that all participants in the financial services game can compete fairly. Many banks feel that they have to diversify into areas that will enable them to provide greater service to their customers, such as insurance and perhaps real estate and securities brokerage. The public should be the judge of which players best differentiate between products, distribute most efficiently, and provide the highest quality service.[14]

One-stop Service

The current regulatory framework prevents banks from efficiently and safely serving customer needs that non-bank competitors can meet. Banks are barred from certain markets, including insurance, that many consider as natural adjuncts to banking, and which could be offered at existing banking facilities. Many bankers would like to see additional barriers removed that restrict them from competing equally and effectively. They feel that banks would better be able to meet consumer needs if they were permitted to serve their customers' insurance needs and related needs. Furthermore, this could be done without incurring massive costs through facility construction. Obviously, many banks would like to reshape and expand their spheres of influence in the U.S. economy.

In short, bankers would like to provide a broad range of innovative financial services that could be purchased in a single location. This would provide customers with greater convenience, simplicity, and flexibility in their interaction with the provider of integrated financial services. There are synergistic benefits which could result from a financial services conglomerate capable of providing the usual menu of banking services, as well as related nonbanking services in a "one-stop financial services shopping center." Furthermore, bankers insist that consumers wish to shop for all financial services at a single location and that such service is possible with recent advances in technology and communications. This partially explains the crumbling partitions which currently separate the two industries.[15]

Economies of Scale

Bankers feel that they would be able to experience economies of scale if they were permitted to enter the insurance business. The effect of deregulation on banks thus far has been to increase the cost of doing business with no commensurate opportunity to increase the quality and quantity of services provided to customers. Among other things, the disappearance of low- or no-cost money has exerted strong pressure on bank profit margins. Increased efficiencies due to a larger volume of business will result in lower costs that can be passed along to the consumer in the form of higher-yielding financial products, lower costs, and better service. Moreover, bankers contend that they can cut out steps in the distribution process and deliver the insurance product more efficiently. Increased competition would insure that inordinate profits would not accrue to large banks who acquire insurance agencies and/or carriers.[16]

No Increase in Risk

Bankers contend that the soundness of the banking system would not be undermined if banks were permitted to sell insurance and to diversify into an even broader range of activities. Banks are currently prohibited from entering and profitably marketing certain products and services which are closely related to those already being provided. Banks might face reduced risk if current restrictions were removed that prevent diversification while at the same time leaving banks vulnerable to competition from unregulated institutions and outsiders. Concentration and conflicts of interest might be mitigated with the easing of product restrictions on the banking system. Furthermore, studies have shown that many individual customers—particularly those in lower income brackets—as well as many business customers believe that they would benefit from deregulation giving bankers power to enter the insurance industry and other forbidden service and product areas.[17]

WHAT DOES THE FUTURE HOLD

Assuming that banks are allowed to enter the insurance business, what might be the final result? Any answer to this question must be conjectural and problematic, but several observations about how the scenario might develop are presented below.

First, banks who desire to enter the underwriting end of the insurance business will likely be permitted to acquire an existing insurance company or to create a new one. It would not be feasible to conduct a banking and insurance operation within the same corporate entity, and the traditional requirements of separate corporations should be maintained. Banks are not familiar with the cultural and attitudinal environment of the insurance industry and should not be permitted to exercise direct insurance powers. Banking and insurance activities should be insulated from one another. The regulatory problems in such a situation—particularly since banks and insurance companies have different insolvency guaranty funds—would be a nightmare. It would seem likely that the creation of a financial conglomerate would be easier and present fewer problems. Of course, the linking of various financial services providers under the same corporate umbrella will present gigantic management problems, and will force companies to evaluate their current status and carefully plan their future.[18]

Second, banks must analyze their service objectives and consider where their potential lies in unfamiliar applications such as insurance. The initial thrust of the banks would likely be in the distribution of insurance products (particularly personal lines products) rather than in underwriting risks. The reason is simple—there are fewer risks in marketing the insurance product than in operating an insurance carrier. Hence, it would be far easier for banks to convince legislators and/or regulatory agencies that they could operate an agency rather than a company without imperiling their own business. The operation of agencies only, of course, would mitigate against any undue concentration of power. However, it is interesting to note that many large banks are expressing a desire to become a factor in the insurance business worldwide, not only in sales but in underwriting through the ownership of companies.[19]

Third, a problem arises with respect to regulation, the complexity of which will be heightened immeasurably if banks are permitted to enter the insurance business. Over 98 percent of the banks in the country are regulated and supervised to some degree by federal authorities: the FDIC, the Federal Reserve System, or the Comptroller of the Currency. On the other hand, there is no comparable regulatory body at the federal level for insurance. The conduct of insurance companies is regulated at the present time by the individual states where they are domiciled and/or where they do business. There might be great pressure for a change in the regulatory climate if banks are allowed to enter the insurance business. Of course, it is possible that insurance might be brought under the aegis of federal regulation—particularly if state insurance departments prove incapable of regulating them—if the business which owns them is subject to such regulations. Alternatively, state insurance commissioners could regulate the insurance component of bank-insurance combinations if state insurance departments were strengthened and more vigorous regulatory laws were enacted. Finally, bank entry into insurance could result in the consolidation of some state banking and insurance departments.[20]

Whether regulation of bank-insurance combinations occurs at the state or federal level, one important objective must be the preservation of the integrity of the insurance product and of the competitive nature of the market in which it is sold. Of course, the protection of the banking customer and the soundness of the banking system must also be preserved. In addition, there must be an avoidance of a regulatory void where neither federal nor state regulators may exercise oversight, or where there is both federal and state regulation of the diversified entity. The increasingly integrated financial services industry will pose a continuing challenge to federal and state regulators who must devise a fair and efficient system that will protect the public as well as the safety and stability of the financial institutions involved.

Fourth, a question arises about what will happen to insurance company employees and producers if banks enter the insurance business. It seems logical that many of these people would retain their present positions if their company or agency was purchased by a bank. They are trained to perform the insurance function while employees of the acquisitor, purchasing bank, probably would not be. Of course, there would likely be some relocations and terminations, and the salary check might be issued by a bank rather than an insurance company.

Bank-insurance combinations might also result in reductions in salary for insurance personnel. This is true because banks insist that they can pare administrative costs and reduce agents' commissions, i.e., they can implement more cost-effective distribution systems through reductions in acquisition costs. Increased competition could reduce costs in other ways. Agents would likely bear the brunt of such cost-cutting efforts.

Therefore, it is possible that bank entry into insurance might result in shrinkage in agency forces as well as in salaries and administration costs. However, those companies and agencies that are most competitive, most responsive to consumer demand, and best able to exploit new technologies, would likely survive. Smaller firms which concentrate on a specific and profitable market segment, and which offer personal service and are highly responsive to consumer needs, will continue to prosper.[21]

CURRENT LEGISLATIVE STATUS

As banks find ways to bypass what they consider to be outdated regulations, there is considerable legislative activity at both the state and federal levels to facilitate the purchase of insurance companies and/or agencies by commercial banks. In general, legislators and regulators seem to be receptive to the idea that current restraints should be removed or relaxed that prevent banks from crossing current boundaries and edging into insurance. The Reagan administration seems to support increased competition and the relaxation or elimination of such regulatory restrictions. Also, as noted earlier, bank trade associations are lobbying intensively and positioning themselves for even greater promotional efforts in the future.

South Dakota passed a law in 1983 giving bankers carte blanche entry into the insurance business. This legislation—which some see as a circumvention of the intent of federal law—permits bank holding companies, which are currently banned by federal law from purchasing insurance distributive outlets or insurance companies, to purchase insurance companies and agencies in South Dakota. The law passed as a "jobs bill"—it was designed to attract bank holding companies in South Dakota and to create new jobs in the state—but obviously had considerable regulatory overtones.[22]

Immediately after the passage of the law, three major bank holding companies made application to either purchase or establish state-chartered banks in South Dakota. The Federal Reserve Board indicated in January, 1984, that it was concerned about the South Dakota "loophole" permitting such action, and that it could not accept the proposed bank acquisitions under present Federal Reserve rules and expressed Congressional intent. It announced a holding action on requests by banks to move to South Dakota. The three bank holding companies withdrew their applications to prevent an adverse ruling The decision by the Fed places the question of bank entry into the insurance business in the hands of Congress. It appears likely that it will be there—and not in the states—where legislative action will develop. Permission may not come with the passage of a single law, but rather through the gradual penetration of banks into the insurance business, as protective barriers which prohibit such entry begin to crumble.[23]

CONCLUSIONS

Many questions arise when one considers that banks might be permitted to serve as a conduit for insurance products and services. What method of marketing insurance will bankers find most useful in reaching their target market? Can they sell or underwrite insurance more profitably than insurance companies? Which line of insurance is most vulnerable and most susceptible to bank incursion? What counter-strategies should insurance companies use to meet the challenge of these potential competitors?

It is interesting to speculate about how well banks might fare in the insurance business if permissive legislation were to be enacted. Many polls show that people rank banks higher than insurance agents in terms of prestige, which means they might have an initial competitive edge. However, one must remember that most banking transactions (deposits, loans, etc.) are not adversarial in nature, while many insurance dealings (e.g., claims adjusting) are. If banks get into the insurance business, they will face the same problems that insurance companies now face and the entire tone of their operation will probably have to change. Given banks' absence of experience in certain areas—product knowledge, communications insights, and depth of background in insurance—it is possible that the head start which banks now enjoy will erode over the long term. Service, product line, and effective marketing may determine who acquires (or retains) the insurance business, not the ill-defined public perception of which is the most prestigious type of financial intermediary.

Will banks be selling insurance—or even owning insurance companies—in Arkansas and other states in the foreseeable future? There is no way to be certain, of course, but many bankers insist that it not only is possible but even highly likely. As noted previously, even some insurance trade associations and prominent insurance leaders feel that consumer demand along with technological advances and deregulation make the drive toward financial service integration inescapable. Others feel that permitting banks to buy insurance companies would be nothing less than a criminally careless act perpetrated upon an unsuspecting public who would ultimately pay for its deleterious consequences. The broad question of what is the proper structure and function of the financial institutions network in Arkansas and the country is at stake. Only time will tell if bank-insurance combinations will be permitted and what the long-run public interest implications might be. About the only certain projection is that the mad scramble by financial intermediaries for the consumer's dollar will continue and create even more instability in the financial services arena in the future.

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[1] The authors gratefully acknowledge the help of Ronald Taylor (Assistant Commissioner for Finance in Arkansas), Sylvia Hoke (Arkansas State Bank Department), and Renee Valentine (Office of the Comptroller of the Currency in Washington, D.C.), each of whom provided important statistical data for this study.

[2] Information concerning state-chartered banks operating in Arkansas was provided by Sylvia C. Hoke of the Arkansas State Bank Department in Little Rock. Information about national banks operating in the state was provided by Renee Valentine of the Office of the Comptroller of the Currency in Washington, D.C., and by Melanie Smith at the Regional Office of the Comptroller in Oklahoma City, Oklahoma. Statistics on state-chartered banks are effective as of September 1, 1984, and those applying to federally chartered banks operating in Arkansas are effective as of March 31, 1984.

[3] Data concerning the number of domestic and foreign insurance carriers doing business in Arkansas was provided by Ronald Taylor, the Assistant Commissioner for Finance in Arkansas in Little Rock. Figures are effective as of September 1, 1984.

[3] "Armacost Says 'Loosen Reins on Banks'," *Insights*, April 15, 1984, p. 2; David C. Jones, "Citicorp Exec Describes Bank Aspirations," *National Underwriter* (Life and Health Insurance Edition), March 31, 1984, p. 1; and Mary Jane Fisher. "Industry Presents United Front in Opposing Banking Deregulation Bills," *Na-*

tional Underwriter (Property and Casualty Insurance Edition), March 9, 1984, p. 1. The best and most succinct article on the subject of bank entry into insurance to date is Joseph Decaminada, "Insurance and Banks: Quo Vadis," *National Underwriter* (Life and Health Insurance Edition), March 23, 1984, p. 11.

A related argument in the financial services debate has to do with the entry of insurance companies into the banking field. Even insurance spokesmen disagree on whether or not insurance holding companies should be allowed to buy banks. Many feel that such a law is necessary if insurors are to remain competitive. See Joseph S. Diamond, "Industry Split Over Major Question in Full Financial Services Debate," *National Underwriter* (Life and Health Insurance Edition), September 22, 1984, p. 1.

[5] Mary Jane Fisher, "Alliance Ends Opposition to Banks in Insurance," *National Underwriter* (Property and Casualty Insurance Edition), January 20, 1984, p. 2; Sam Friedman, "Agent Sees Bankers as Potential Partners," *National Underwriter* (Property and Casualty Insurance Edition), March 23, 1984, p. 4; and Mary Jane Fisher, "Industry-Supported Bank Measure Pronounced Dead," *National Underwriter* (Life and Health Insurance Edition), September 29, 1984, p. 1.

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[11] Fisher, "Industry Presents United Front in Opposing Banking Deregulation Bills," and Thomas H. Maher, "ACLI's Kingsley Cites Threat Facing Industry," *National Underwriter* (Life and Health Insurance Edition), October 1, 1983, p. 3.

[12] James Douds, "Deregulation Rollback Possible," *Life Association News*, April, 1984, p. 17, and Jack E. Bobo, "Guest Editorial," *CLU Journal*, July, 1984, p. 9.

[13] "The Golden Plan of American Express," *Business Week*, April 30, 1984, p. 118, and Becky Dixon, "Causes for the Financial Services Evolution," *CLU Journal*, March, 1984, p. 74.

[14] Walter B. Wriston, "Bankers and Plato's Cave," *Vital Speeches of the Day*, January 15, 1984, p. 208, and "Banks Belong in Insurance, Says Citibank Vice Chairman," *National Underwriter* (Life and Health Insurance Edition), May 12, 1984, p. 1.

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[16] Mary-Margaret Wantuk, "More Changes in Banks," *Nation's Business*, February, 1984, p. 28, and "Easing Regulations Shouldn't Increase Risk," *Insights*, May 15, 1984, p. 1.

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THE EFFECT OF THE 1984 MILK DIVERSION PROGRAM

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The milk diversion program is the first production control program the dairy industry has seen in over 30 years. Milk production during the first half of 1984 was 69.93 billion pounds, down from the 71.13 level of the first half of 1983. With farm-level milk prices down two to three percent and dairy ration prices up about 15 percent, some decline in milk production was possible without the diversion program.

What effect did the diversion program have upon milk production? The following analysis indicates that milk production for the first three quarters of 1984 was 2.6, 6.5 and 5.6 percent, respectively, below the level it would have been without the program. This analysis was based on two regression equations—one for the size of the dairy herd and the other for milk production per cow—which were used to determine the likely level of milk production in the absence of the program.

BACKGROUND

From 1965 to 1977 milk production remained relatively unchanged. Seasonally adjusted, quarterly milk production during this period ranged from 29 to 31 billion pounds, Figure 1 (a four-quarter, centered, moving-average was used to seasonally adjust production). Production began to increase in 1978. By mid 1983 seasonally adjusted production had reached 35 billion pounds.

The increase in milk production during the late 1970's was due to 1) a continuation of the increase in milk produced per cow and 2) a reversal of the decline in the number of milk cows.

Output per cow, Figure 2, steadily increased during the 1965 to 1972 period. Following a lull in the increase during the 1972 to 1973 period, largely due to the high feed costs during that period, the seasonally adjusted increase in milk per cow resumed and has remained fairly steady.

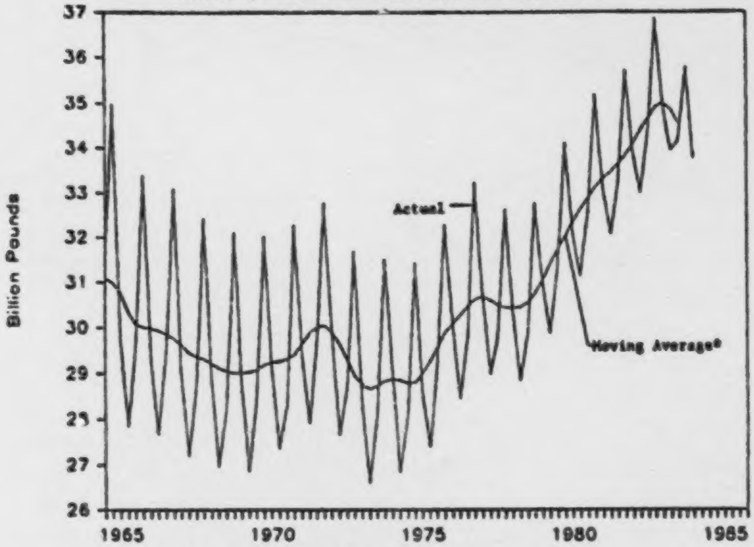
The number of milk cows declined until 1979 when it bottomed out slightly above 10.7 million head, Figure 3. From 1979 to the end of 1983 the number of cows had increased to over 11.1 million head.

Faced with rising production and burgeoning stocks, the milk diversion program was announced in the fall of 1983. It called for farmers to reduce milk marketings 5 to 30 percent from their base—the average of their 1981 and 1982 marketings or their 1982 marketings, which ever they chose. It was hoped this would start the number of milk cows trending downward again.

STATISTICAL MODEL

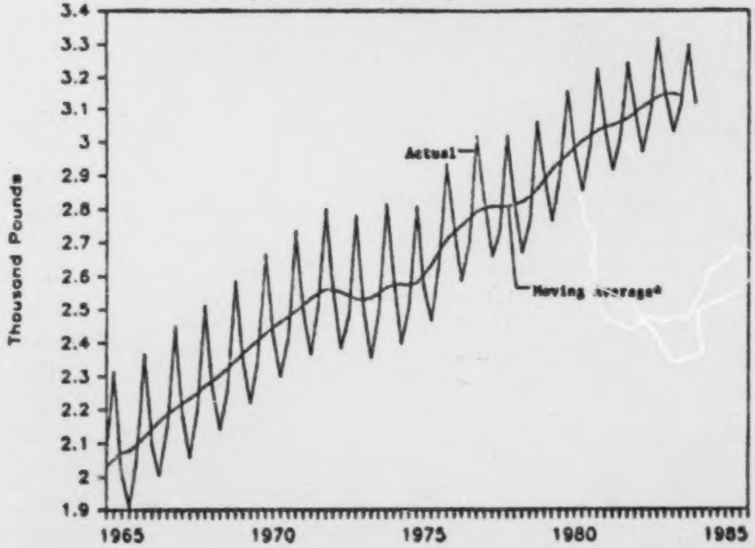
To estimate the effect of the milk diversion program upon milk production, two

Figure 1: Quarterly Milk Production
(First Quarter 1965 - Third Quarter 1984)



*Four quarter, centered, moving-average

Figure 2: Milk Production Per Cow
(First Quarter 1965 - Third Quarter 1984)



*Four quarter, centered, moving-average

regression equations were used to determine the likely output per cow and the number of dairy cows in the absence of the program, Table 1. Historically, these equations accounted for over 99 percent of the variation in output per cow and in the number of cows.

Dairy cows are routinely kept in production for three years or longer. Because of the relatively fixed nature of the size of the dairy herd and the long lag time required to increase the size of the herd, a quantity adjustment model incorporating a ten quarter, moving-average of the milk-

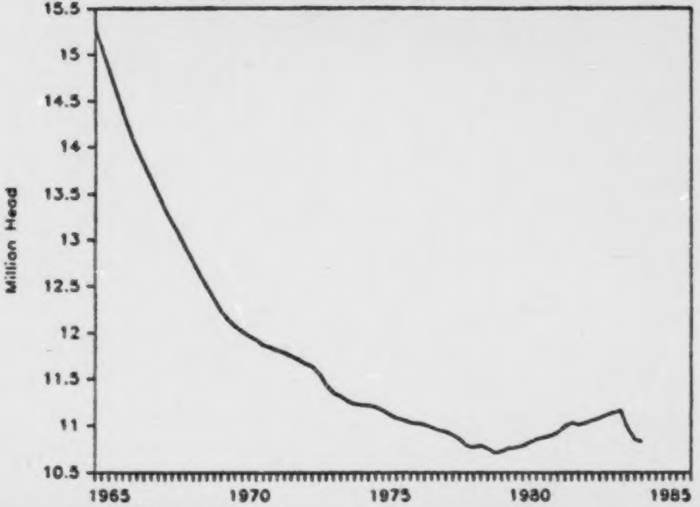


Figure 3: Number of Dairy Cows
(First Quarter 1965 - Third Quarter 1984)

to-feed price ratio was estimated.

The adjustment coefficient (0.08) from the dairy herd equation indicates that when farmers respond to changing milk and feed prices they typically adjust the size of the dairy herd very slowly—making less than ten percent of the potential long-run adjustment in any given quarter. The equations also indicate that a 10 percent increase in milk prices (or a 10 percent decrease in feed prices) will increase the number of milk cows by 0.15 percent in

TABLE 1
Estimating Equations for Dairy Herd Size and Milk Per Cow

DHS = 611.701 + 0.928 DHSL + 121.498 MFPR10 (142.116) (0.015) (51.446)	$R^2 = 0.99$
MPC = − 499.418 + 0.710 MPCL + 62.438 MFPR3 + 16.640 Year (183.423) (0.086) (27.222) (4.935) + 200.279 Spring − 214.599 Summer − 201.006 Fall (14.620) (37.412) (19.954)	$R^2 = 0.99$

DHS = Dairy herd size for the current quarter, thousands.
DHSL = Dairy herd size for the previous quarter, thousands.
MFPR10 = Ten-quartered, lagged, moving-average of the milk-to-feed price ration starting with the current quarter.
MPC = Milk per cow for the current quarter, pounds.
MPCL = Milk per cow for the previous quarter, pounds.
MFPR3 = Three-quarter, lagged, moving-average of the milk-to-feed price ratio starting with the current quarter.
Year = Time trend beginning with 1965 for 1965.
Spring = 1 during the spring quarter, 0 otherwise.
Summer = 1 during the summer quarter, 0 otherwise.
Fall = 1 during the fall quarter, 0 otherwise.

Standard errors are in parenthesis below the coefficients.

N = 56 for the first equation and N = 63 for the second equation

The effect of the winter quarter upon milk production per cow is included in the intercept for the MPC equation.

the short-run and about 2.1 percent in the long-run. Overall, the size of the dairy herd tends to respond very slowly to changing economic conditions.

As figure 2 illustrates, there is a strong seasonal aspect associated with milk production per cow. In addition, output per cow has tended to increase over the years as farmers have changed the dairy rations and their management practices. While these changes have tended to occur slowly and steadily, farmers also respond to current economic conditions. To capture these different aspects of milk production per cow, a quantity and adjustment model which included seasonal factors, a time trend, and a three quarter moving-average of the milk-to-feed price ratio was estimated.

The adjustment coefficient (0.29) indicates that when farmers respond to changing economic conditions they typically adjust per cow milk production more quickly than they adjust the size of the dairy herd—almost 30 percent of the potential long-run adjustment in output per cow is made in any given quarter. The coefficient on the time trend indicates that output per cow has increased slightly over 16 pounds per year in response to the changing rations and management practices. If the price of milk increases by 10 percent (or if the price of feed decreases by 10 percent) farmers will increase milk production per cow by 0.35 percent in the short-run and by 1.2 percent over a longer period of time.

These equations indicate that although both adjustments take time, the output per cow will be adjusted faster than the number of cows. However, there is also the culled-cow effect to consider. When farmers reduce the size of the dairy herd they remove the cull, or worst producing, cows from the herd. This causes the average, per cow, production for the remaining herd to increase. The culled-cow effect could offset the farmer's attempt to reduce the per cow production for the herd.

EFFECT OF THE PROGRAM

Milk production during the first three quarters of 1984 would have been 2.6, 6.5, and 5.6 percent higher without the program than it has been with the program, Table 2. The estimated effect of the program is illustrated in Figure 4.

Figure 4: Actual and Estimated Quarterly Milk Production

(1982 - 1984)

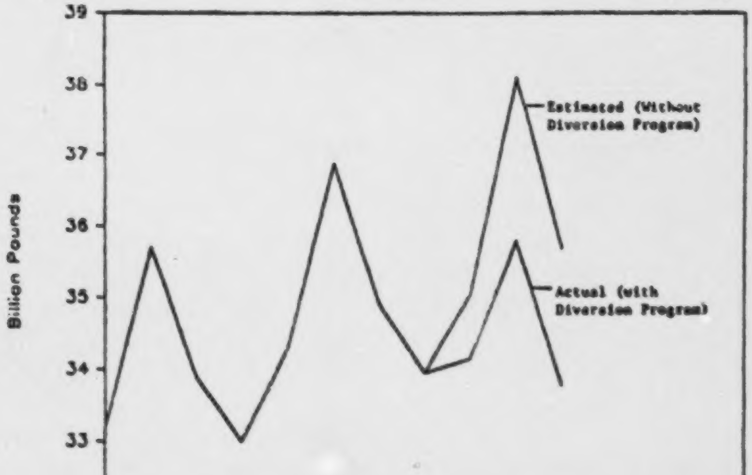


TABLE 2
Actual and Estimated Milk Production for 84 by Quarter

	Actual (with program)	Estimated (without program)	Program Effect	
			Difference[1]	Percent[2]
First quarter				
Number of cows (thousands)	10,971	11,169	198	1.8
Quantity of milk per cow	3,112	3,136	24	.8
Milk production (million pounds)	34,136	35,026	890	2.6
Second quarter				
Number of cows (thousands)	10,852	11,177	325	3.0
Quantity of milk per cow	3,298	3,409	111	3.4
Milk production (million pounds)	35,789	38,102	2,313	6.5
Third quarter				
Number of cows	10,835	11,182	347	3.2
Quantity of milk per cow	3,117	3,188	71	2.3
Milk Production Total (million pounds)	33,772	35,634	1,876	5.6

[1] Estimated minus actual.

[2] Difference divided by actual times 100.

For the first quarter of 1984 the program's largest effect was upon the size of the dairy herd. The analysis indicated that the dairy herd declined 198 thousand head from what it would have been in the absence of the program. While milk production per cow was also affected, it was only down about 24 pounds from the estimated no-program level. It is possible that the culled-cow effect caused the first quarter adjustment in milk per cow to be less than it would have been had the dairy herd not been reduced.

During the second quarter farmers responded by reducing both the size of the dairy herd—down 325 thousand head from the estimated no-program level—and milk production per cow—down 111 pounds from the estimated no-program level. This resulted in the second quarter posting the largest net reduction in milk production from the estimated no-program levels.

Farmers continued to reduce the size of the dairy herd from the estimated no-program level during the third quarter—down 347 thousand head. While milk production per cow during the third quarter stayed below the estimated no-program level by 71 pounds per cow, the reduction was less than it was during the second quarter. Overall, milk production was down about 5.6 percent from the estimated no-program level for the third quarter.

DISCUSSION OF THE ESTIMATES

When interpreting the above results, several points should be kept in mind. First, the no-program estimates of production presented above were based solely on the two regression equations. While these equations fit the data very well over the historical period (1965 to 1983) there are several aspects of the market which are not captured by them. For example, there is some indication that lending agencies in 1983 were beginning to reduce the number and size of loans available to dairy farmers which would tend to lower production in 1984 independently of the program. Also, no attempt was made to capture the effects of substitute enterprises or of the interaction between the high feed cost last fall and the announcement of the program.

The second consideration concerns the "point" estimates presented above. There is a forecast interval associated with each of the no-program estimates. For example, the forecast interval for milk production per cow is within ±27 pounds of the estimated production. In other words, for the first quarter of 1984 there is a two-thirds chance that production per cow without the program would have been between 3,109 and 3,163 pounds. Since actual production per cow was 3,112 pounds, the above forecast interval indicates that the program may have increased production per cow by 3 pounds or it may have decreased it by as much as 51 pounds. Since the estimated effect of the program for the first quarter was a reduction of 24 pounds per cow—and this is less than the forecast interval of 27 pounds—then the program had no statistically significant effect upon milk production per cow during the first quarter only. All other estimated effects of the program, for both milk production per cow and size of the dairy herd, were statistically significant. The forecast interval for the size of the dairy herd was ±38 thousand head.

The final consideration is the possibility of simultaneous equation bias. Milk prices are determined in part by the amount of milk produced. The no-program estimates presented above are based partially upon milk prices during the first three quarters of 1984. In the absence of this program, these prices might have been higher or lower than they actually were—depending largely upon any alternative program initiated by the government. If the alternative program would have resulted in higher prices, then these estimates understate the effect of the current program. Conversely, if the alternative program would have resulted in lower prices, then these estimates overstate the effect of the current program.

The potential bias would be smallest for the first quarter dairy herd estimate since it was based on a 10 quarter moving-average of the milk-to-feed price ratio which included 9 quarters of pre-program prices and only one quarter of program affected prices. The bias would potentially be greatest for the third quarter milk per cow estimate since it is based on a 3 quarter moving-average of the milk-to-feed price ratio and all three quarters contained program affected prices. It is unlikely that any alternate program would have caused prices to be more than 10 percent higher or lower than they currently are which would limit the potential bias to less than one percent.

The fourth quarter 1983 to first quarter 1984 drop of 187 thousand head in the dairy herd represents the largest quarterly decline since 1966. Also, seasonally adjusted milk production per cow has not declined as much as it has this year since 1973. With this information and the estimated decline in production illustrated in Figure 4, it is evident that the program, now at the midpoint, has resulted in a decrease in milk production.

A MODEL FOR PREDICTING RETAIL SALES AFTER THE ENACTMENT OF A CITY SALES TAX

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INTRODUCTION

Thirty-three states allow their local communities to levy general retail sales taxes. As a result, over 4000 communities collect revenues from these taxes.[1] The legislature in the state of Arkansas, a relative newcomer among states with local option sales taxes, passed Act 990 in 1975 and last amended it in 1981. Under the act, as most recently amended, almost all cities and incorporated towns in the state are allowed to tax, with local voter approval, the gross receipts of resident retailers.[2]

An important question being asked by many Arkansans is what impact, if any, will these new taxes have on local retail trade? Numerous Arkansas retailers are justifiably concerned that once an additional one cent sales tax is imposed in their communities, consumers may decide to purchase items in nearby jurisdictions without local sales taxes. Though there exists an abundance of studies that support this concern,[3] not everyone agrees that sales taxes adversely influence retail sales.[4]

In the analysis that follows the author will develop a working model to help Arkansas decision-makers predict the retail trade in their cities in response to the imposition of a local sales tax.

THE MODEL

Since 1981, forty-seven cities have imposed municipal sales taxes in Arkansas. The author's method (described below) requires data both before and after a community imposes a sales tax. Because tax collections for 1984 are not yet available and the state finance office did not report data on retail sales until 1980, this analysis will focus on the cities which enacted sales taxes in 1981 and 1982 (listed in Appendix A).[5] Though seventeen cities imposed retail sales taxes in 1981 and 1982, only the thirteen cities listed in Appendix A can be examined in this analysis. The reason for this limitation is that the state of Arkansas lists all retail sales by zip code, not by city name. The zip codes for Hardy, Mammoth Spring, Mountain Home and Siloam Springs, the four tax imposing cities removed from the analysis, cover areas far beyond the city borders. Therefore, the retail sales reported for those four cities' zip codes were not considered representative of the actual city retail sales. Since two of the cities examined, Arkadelphia and Caddo Valley, share the same zip code, our actual 'n' for the computation of degrees of freedom is 12. These problems do not apply to the non-taxing entities examined below.

One technique for predicting the total retail sales that would be expected in a subsequent year in any given community is to look at the sales in the current year. Knowing this, one might then predict that next year's retail sales will equal this year's sales plus or minus a small increase or decrease.

When per capita retail sales in 1983 are regressed on per capita retail sales in 1981 for every Arkansas city without a sales tax that was located in a county without a sales tax, the adjusted coefficient of determination (R squared) is .982.[6] In other words, if in 1982 just the retail sales per capita in 1981 for each city without a local sales tax were known, one could have predicted with 98% accuracy the per capita retail sales in 1983 for each of those communities (see Table 1). Throughout this discussion, "adjusted R squared" will be reported since the analyst is working with a relatively small number of cases and a comparably large number of variables.[7] Also, since the goal of this exercise is to build a model based on data that are readily available to decision-makers, all population figures are based on 1980 census reports and do not take into account the population growth from 1980 to 1982 or 1983. When contacted, less than half of the city officials or Chambers of Commerce representatives could provide a city population figure more recent than 1980.

The reason 1981 per capita retail sales were used (and not the 1982 figures) to predict the per capita retail sales in 1983 is that the goal of this exercise is to utilize variables that will be available to decisionmakers when attempting to determine the impact that local sales taxes will have on certain communities. Decision-makers in 1982 could not have known the retail sales for that entire year.

If knowing just per capita retail sales in 1981 would allow the prediction, with similar accuracy, of the 1983 per capita retail sales in communities with local sales taxes, there would be little need for the present analysis. But, once a local sales tax is enacted the ability to predict per capita retail sales with the single variable model described above, drops significantly. When the variable, per capita retail sales one year after sales taxes were enacted in each examined city, is regressed on per capita retail sales one year preceding enactment, one finds that the resulting equation is less than 80% accurate (R squared = .796-see Table 1). If the imposition of sales taxes is what influenced the changes in retail trade in the examined cities, one should be able to increase the accuracy of the equation by adding to it variables that are normally considered to influence the variations in consumer response to those taxes.

The variables that were considered were: 1) a formula derived variable (see formula 1 below) that is based on per capita retail sales during the year preceding the enactment of the sales tax and past population growth rates in each town; 2) the percentage of a city's total retail sales that are subject to the sales tax; 3) per capita income in 1980; 4) total population in 1980; 5) distance to nearest competitive market without a sales tax; 6) size of retail market; 7) percentage of retail trade due

TABLE 1
Predicting Per Capita Retail Sales One Year After Enacting a Sales Tax Knowing Only Per Capita Retail Sales One Year Before Tax Enactment

	Cities without Local Sales Taxes in Counties without Sales Taxes	Cities with Local Sales Taxes in 1981 and 1982
Adjusted Coefficient of Determination (R squared)#	.981	.796
t-ratio	43.134	6.632
degrees of freedom	35	10

#For cities without sales taxes, predictor per capita retail sales apply to 1981 and predicted per capita retail sales apply to 1983.

to tourist activity; and 8) distance to nearest city with a population over 20,000 and without a sales tax. A brief description of each variable considered and the data collection process follows.

Though in Table 1 are shown the relationships between retail sales one year before the imposition of a sales tax and per capita retail sales one year after the tax was imposed, the first variable was changed slightly for the subsequent analysis. Specifically, the author computed a projected per capita retail sales figure based on retail sales one year before the sales tax was imposed in each city, and the average annual population growth from 1970 to 1980 in each city. The formula used (subsequently referred to as formula 1) was:

(Formula 1)

$$A = (b \times c) + c \text{ and } B = (b \times A) + A$$

where A = the projected retail sales per capita during the year in which each city enacted a local sales tax; b = the average annual population growth rate from 1970 to 1980; c = the retail sales per capita during the year preceding the imposition of the local sales tax; and B = the projected per capita retail sales in each city one year after the local sales tax was enacted. "B" is used in place of per capita retail sales one year before tax imposition because using "B" as a predictor results in a higher R squared (.839 versus .796). Though the difference may not appear significant at this point, the final model is much stronger using "B". All per capita retail sales figures are computed from data available through the Sales and Use Tax Section of the Arkansas Department of Finance and Administration. As mentioned previously, the data are listed by zip code and may not represent with complete accuracy, the borders of any given city. Nevertheless, zip code data are the only data available in the state of Arkansas for this type of analysis. Fortunately, the zip codes represent, almost perfectly, the boundaries of the 13 cities examined. As a result of projections made for nearly 50 cities in the state, the author estimates that about 3 out of every 4 cities in Arkansas have exclusive zip codes or at least 97 to 100% of the zip code's retail trade takes place within the limits of the city in question.[8] The population figures on which the per capita computations are based apply to 1980 for reasons discussed above.

The second factor, the percentage of total retail sales that are subject to the local sales tax, was considered important because consumers might make an economic decision to continue purchasing retail goods in a town as long as those goods were not subject to the additional tax. However, the inconvenience of purchasing some consumer goods in one town and others in another town might involve more costs than most consumers might be willing to incur. Nevertheless, the possible influence of this factor was considered important enough to be included in the equation.

Per capita income was considered because many claim that sales taxes are inelastic in their response to income variations.[9] Therefore, as the per capita income of the residents of a community increases, the likelihood that the additional income will not be used for taxable purchases also increases.[10] Alternatively, some argue that as residential per capita income increases, residents are better able and more willing to bear the additional burden of new taxes.[11]

Population, the fourth variable considered, was added because cities with larger populations often have more numerous and larger retail outlets.[12] This variety might provide increased convenience for the consumer and perhaps an incentive to continue making purchases in the city notwithstanding an additional tax.

The fifth variable considered, distance to nearest competitive market, is perhaps the most controversial of all factors. Do consumers shift their purchasing power to markets without local sales taxes?[13] Or does the inconvenience and additional fuel cost of travelling to other markets outweigh, in the minds of the consumers, the marginal cost of the next tax? As the distance to a competitive market increases, the inconvenience and fuel costs should increase proportionately. The method for determining the distance to the nearest competitive market was through responses to a mailed questionnaire and two follow-up phone calls to each city manager or mayor. Among the numerous questions was the request to list both the name and distance to the nearest town of comparable size or larger that did not have a local one cent sales tax.[14] The reason for relying on reports from city officials is that even though one could easily determine the nearest city of comparable size with just a state map, the author could not determine if that city was considered by town residents to be a viable alternative market area.

The size of the retail market is an estimate of the ratio of: 1) people who are dependent upon the city in question for the predominant amount of their retail purchases; and 2) the actual city population. The first figure was supplied by the Chambers of Commerce in each city and are rough estimates. The figures were then divided by the city population for a ratio of city population to population dependent upon the city for retail purchases.

Factor seven, percentage of retail trade due to tourist activity, is a measure designed to determine whether the community benefited from a large amount of tourist trade. The percentage of retail trade due to tourist activity is an estimate provided by the cities' managers, mayors or financial directors during the interview process already described. The reason tourism was considered a potentially important variable in this analysis is that tourists may be less likely to avoid making retail purchases in response to an additional tax simply due to the psychology involved with vacation and travel spending. Therefore, a town that relies heavily on tourist activity for their retail trade may see a different response to the enactment of a local sales tax than do communities that rely solely on their resident's retail purchases.

The final variable considered was distance to nearest city with a population over 20,000 and without a local sales tax. Specifically, the author measured the distance each of the tax imposing cities was from one of the following cities: El Dorado, Fayetteville, Fort Smith, Hot Springs, Jonesboro, Little Rock, Springdale, and West Memphis.[15]

Flora has argued that small town residents tend to make a substantial portion of their retail purchases in larger cities.[16] Perhaps, those communities nearby major retail markets will lose a greater portion of their retail sales to the major market, because the additional individual cost of planning to make all purchases in the major market are minimal, when most purchases are already being made there. Even so, it may be that since retail purchases are already so minor in a town located near a major market, little effect will be observable.

The statistical problems inherent in building a predictive model with so many variables and so few cases are obvious. Since the author is reporting "adjusted" R squared many of those problems are eliminated, but taken to the extreme (for example thirteen variables and thirteen cases) even this adjustment is not enough. Considering the limits of the data, and because the goal of this analysis is to develop a fairly accurate, yet conveniently used, model through which interested parties can predict the response of their own retail trade to the imposition of a local one cent sales tax, it is necessary to eliminate as many of the variables discussed above as possible without sacrificing the power of prediction. The method chosen for this selection/elimination process was stepwise regression. Only those variables were considered that had partial correlation coefficients with the dependent variable, before entry into the equation, that were significant at .10 or less. The .10 level was selected because the t values on which the significance levels are based, are dependent in part on the number of cases examined. The studied cases, being so few, required extension beyond the .05 level. Nevertheless, the author did not wish to extend the level beyond .10 because it might allow the entry of variables into the equation that would not apply if the included cases could, in future analyses, be extended.

The variables that met entrance requirements were: the formula based variable (see formula 1); per capita income, and the ratio of total retail sales to taxable retail sales. The results are reported in Table 2.

If, in either 1980 or 1981, only three variables were known for every town that went on to enact a local sales tax in 1981 and 1982 respectively, the author could have predicted with 99% accuracy the per capita retail sales those communities would have experienced the year following the imposition of the taxes. This is a major improvement over the less than 80% accuracy of prediction possible through knowing just the retail sales per capita one year before tax imposition.

The actual model that results from this analysis is:

R = f(F,P,S), where
R = per capita retail sales one year after imposing a local sales tax
F = the formula based predictor variable computed in formula 1
P = per capita income in 1980
S = percentage of total retail sales that are taxable

Once the appropriate constant (−14153.01) and partial regression coefficients are incorporated into the model, the following formula results:

(Formula 2)

$$R = -14153.01 + 1.015(F) + 2.104(P) + 6380.665(S)$$

TABLE 2

Predicting Per Capita Retail Sales One Year After the Imposition of A Sales Tax in Arkansas Cities Which Enacted Sales Taxes in 1981 and 1982

Dependent Variable	Independent Variables		
Per Capita Retl. Sales 1 Year After Imposing Sales Tax	Formula Derived Predictor Variable	Per Capita Income	% of Retail Sales that are Taxable
Combined Coef. of Determ. (R squared)#	.839	.954	.992
Standard Error	2068.29	1111.76	471.26
t-ratio with 9 degrees of freedom$	29.25	11.87	6.49

#Multiple R squared progressing from left to right; standard error progresses from left to right also

$t-ratio for each variable once placed in final equation

Perhaps an example will display exactly how this model would be used. If, in 1982, the city leaders of Brinkley wanted to estimate what the retail sales in their city would be after the imposition of a local sales tax, they would first use formula 1 to determine the first predictor variable. Then, they would determine the per capita income for their town in 1980. Next, they would determine the percentage of total retail sales that were taxable by dividing taxable retail sales by total retail sales. All of these data are available through the sources cited above. For Brinkley, the figures would have looked like the following;

$$R = -14153.01 + 1.015(10474) + 2.104(4044) + 6380.665(.68)$$

The predicted retail sales per capita from this calculation are $9,326. The actual retail sales per capita in 1983 for Brinkley were $9,501. Therefore, if in 1982 we were asked to project the retail sales per capita for Brinkley in 1983 if it enacted a local sales tax, our estimate would have been off the actual per capita retail sales experienced in 1983 by 1.9%. The results of the same computations for the remaining cities are listed in Table 3 and the raw data upon which the computations are based are listed in Appendix A.

An extension of this exercise would be to first project retail sales per capita one year after enacting a local sales tax by the use of the single variable model first discussed and then compare the results with those results from the use of formula 2. Since the single variable model would have predicted with a fair amount of accuracy the retail sales if a sales tax had not been enacted, and formula 2 predicts with similar accuracy the retail sales after the enactment of a tax, one could compare the results and determine if retail sales per capita would be expected to decline or remain fairly stable as the result of a new sales tax. Since the number of cases considered in this analysis are so limited, it appears premature to make these comparisons at this point.

CONCLUSIONS

This study has been an attempt to use data, commonly available to decision-makers, for the development of a model designed to predict retail sales per capita one year following the enactment of a local one cent sales tax. The model developed re-

TABLE 3
Predictions of Per Capita Retail Sales One Year After the Imposition of A Sales Tax Compared with Actual Per Capita Retail Sales

City	Predicted Retl. Sales	Actual Retl. Sales	Absolute Error	Percentage Error
Arkadelphia/ Caddo Valley	9582	8944	637	6.7%
Brinkley	9326	9501	175	1.9%
Clarendon	3568	3584	16	.4%
Conway	15175	15259	84	.6%
Cotter	6619	6494	125	1.9%
Eureka Springs	16993	17248	306	1.8%
Forrest City	12363	11867	496	4.0%
Fouke	3712	4477	766	20.6%
Garland	3789	3641	149	3.9%
Hughes	15806	16079	273	1.7%
Lake Village	12650	12173	476	3.8%
Rogers	16522	16783	261	1.6%

quired information that is readily available and should be simple for decision-makers to use. Since each city will respond differently to the enactment of a local sales tax, a model like the one developed above is important if decision-makers are to more accurately project their cities' retail sales after the imposition of sales taxes.

Decision-makers should be aware of several weaknesses in the analysis which while not diminishing the model's utility do make its applicability less than might be after subsequent development. First, since data are not yet available for 1984, the author could not determine what happens to the retail sales in the examined cities after the first year following enactment. Perhaps, retail sales respond differently several years after the imposition of a sales tax than they do one year after the tax is imposed. This question will need to be addressed in future analyses.

Second, since this was an attempt to develop a general model for predicting retail trends after the enactment of local sales taxes in Arkansas, the author focused on combined per capita retail sales. Perhaps, various categories of retail sales respond differently to a new local sales tax than do all categories of per capita retail sales combined. This also is an important question that should be looked at in future studies.

Third and last, while the results of this study are solidly grounded for communities which enacted local sales taxes in 1981 and 1982, they are not necessarily applicable to cities which might enact a local sales tax in 1984 or 1985. Nevertheless, the model proposed should be more accurate than merely looking at past retail sales.

A note of caution; since no city in the state has elected to enact a sales tax below one cent (nor can they, under state statute, enact a sales tax above one cent), the model applies only to that rate and should not be adjusted to fit any other rate of taxation.

Predictive models can be useful, if used merely as tools to assist in decision-making. No decision should be made on the basis of any single model which is predicated on past events. But, history does give us guidance for the future and models like the one developed above should help to make decision-makers' jobs a bit easier.

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[1] Charles Press and Kenneth Verburg, *State and Community Governments in the Federal System*, (New York: John Wiley & Sons, 1983), p. 205.

[2] Bureau of Legislative Research, *County and City Sales Taxes in Arkansas*, (Little Rock: Author, 1982), and Industrial Research and Extension Center, *A Summary of Taxes in Arkansas* (Little Rock: Author, 1981).

[3] See for instance: Harry McCallister, "The Border Tax Problem in Washington," *National Tax Journal*, December 1961, pp. 361-74; Mahmood Yousefi, "A New Look at Sales Tax Rate Differentials and the Border City Problem," *The Journal of Economics*, Annual 1983, pp. 188-193; William Hamovitch, "Effects of Increase in Sales Tax Rates on Taxable Sales in New York City," *Financing Government in New York City: Report to the Temporary Commission on City Finances*, (New York: New York University Graduate School of Public Administration, 1966) pp. 619-634; Henry Levin, "An Analysis of Economic Effects of the New York City Sales Tax," *Financing Government in New York City*, Ibid.; John Mikesell, "Central Cities and Sales Tax Rate Differentials: The Border City Problem," *National Tax Journal*, June 1970, pp. 206-213.

[4] R.C. Fisher, "Local Sales Taxes: Tax Rate Differentials, Sales Loss, and Revenue Estimation," *Public Finance Quarterly*, April 1980, pp. 171-88.

[5] Since the local sales taxes being examined were not initiated before 1981, and the state of Arkansas did not report information about the retail sales within the cities of Arkansas before 1980, we must rely on relatively narrow before versus after comparisons.

[6] The data were available for cities, but listed as totals within counties. Since the data were analyzed on the basis of counties the number of cases is 37.

[7] The formula used for adjusting the R squared is $R = 1-(1-r)((N-1)/N-k-1)$ where R is the adjusted squared multiple correlation; r is the obtained squared multiple correlation; N is the size of the sample; and k is the number of predictors. Unlike unadjusted R squares, the adjusted R square can actually decrease as variables are added to the equation. The formula is not foolproof, but it is certainly a necessary adjustment for data like ours. For a discussion of this widely used technique see: Elazar J. Pedhazur, *Multiple*

Regression in Behavioral Research Explanation and Prediction, 2nd. ed. (New York: Holt, Rinehart and Winston, 1982), pp. 148-149 1982.

[8] Data on retail sales within individual zip codes are available through the Arkansas State Department of Finance and Administration. Elizabeth Bard, Research Coordinator of the Local Government Institute at the University of Arkansas at Little Rock also contributed valuable information for this project.

[9] Per capita income figures were collected from U.S. Department of Commerce, Bureau of the Census, *Census of Population: 1980*, (Washington, D.C.: G.P.O., 1982).

[10] John Mikesell, "Income Elasticities of State Sales Tax Base Components," *Quarterly Review of Economics and Business*, Spring 1977, pp. 83-94.

[11] See for instance: Ann Friedlaender, et. al., "Estimating Sales Tax Revenue Changes in Response to Changes in Personal Income and Sales Tax Rates," *National Tax Journal*, March 1973, pp. 103-110.

[12] Data are from: U.S. Department of Commerce, op. cit.

[13] Fisher, op. cit.

[14] We first asked for the cities' managers. If the city did not have a city manager we asked for the Mayor. In some cases the mayors did not have the information and we questioned the City Clerk. The data reported in this analysis are only a small part of a project to keep track of all Arkansas communities with local sales taxes. In addition to the mailed questionnaire and phone interviews, we have personnally visited most of the 46 cities (and continue to do so).

[15] These are all the cities of Arkansas with a population over 20,000 that did not have a local sales tax in 1983 (Fayetteville initiated a city sales tax in November of 1983). If one of the cities above was located in a county with a county sales tax and the case examined (each of the 15 cities analyzed) was in a county without a sales tax, the distance reported is from the analyzed city to the nearest city over 20,000 without a sales tax and in a county without a sales tax. If, on the other hand, the case examined was located in a county with a sales tax, the figure reported was the distance to the nearest city over 20,000 (listed above), irrespective of whether that city was in a county with a sales tax.

[16] Jan Flora, "Equity in Financing Primary and Secondary Education: A Midwestern Example," *American Journal of Economics and Sociology*, April 1976, pp. 175-189.

APPENDIX A

City Name	Date Tax Enacted	Per Capita Retl. Sales 1 Yr. After Tax Enacted	Formula Generated Predictor Variable	Per Capita Income	Percentage Retl. Sales That Are Taxable
Arkadelphia/ Caddo Valley	12/81 6/81	8944	7561	5779	61%
Brinkley	12/82	9501	10474	4044	68%
Clarendon	1/82	3584	4300	4615	57%
Conway	1/82	15259	13770	5989	43%
Cotter	12/82	6494	8640	4690	34%
Eureka Springs	8/82	17248	13175	5862	85%
Forrest City	12/82	11867	12354	4887	58%
Fouke	5/82	4477	3462	4904	63%
Garland	9/81	3641	5030	3699	79%
Hughes	1/82	16079	18343	4208	39%
Lake Village	10/81	12173	11748	5074	66%
Rogers	7/82	16783	13738	6378	52%

ECONOMIC EDUCATION: A CONTINUING COMMENTARY

RECORD UNITED STATES TRADE DEFICITS: CAUSES AND CONSEQUENCES

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Amid all the good news about the American economy—continued low inflation, rising employment, and steady economic growth—is the discordant note of record shattering deficits in the U.S. balance of trade. The trade balance has gone from a surplus throughout most of the Post-World War II era, to a slight deficit in the troubled 70's, and then to the record deficits of the 80's. The trade deficit has grown from just over $20 billion in 1980 to $123 billion in 1984 with indications that it will continue to expand in 1985.

Unlike the balance of payments which reflects all movements of funds between the U.S. and the rest of the world for whatever reason, the balance of trade reflects merchandise imports and exports. It might seem that a trade deficit (imports exceeding exports) is beneficial in that we are consuming more foreign goods than they are ours. However, American business sales and therefore jobs and income are adversely affected and eventually there must be a reckoning.

A major cause of our massive trade deficits is the continuing strong dollar in foreign exchange markets. Relative value of currencies, i.e. exchange rates, are largely determined by demand and supply of those currencies in the world at large. When citizens of other countries demand more dollars, for whatever reason, the price of dollars or the exchange rate is bid up.

In recent years there has been a very strong demand for American dollars in foreign exchange markets primarily to invest in this country. The United States has been very attractive to foreign investors because of our history of political and economic stability, our recent strong but relatively low inflationary recovery from the world-wide recession, and most important, our relatively high interest rates.

The highly valued dollar means that it takes more foreign currencies to obtain dollars and, consequently, American goods are more expensive abroad while foreign goods are less expensive here. Not only are our exports reduced as American firms face stiffer competition from lower priced goods in other countries but also our imports are increased as foreign goods are cheaper in the United States.

The highly valued dollar is not the only reason for falling exports and rising imports but it is a major factor. So any strategy to reduce the trade deficit must include the lowering of the exchange rate.

The U.S. trade deficit is related to that other deficit currently making headlines: the federal budget deficit. Because federal expenditures are at historically high levels and are greater than revenues, the government must borrow at record levels. This increased demand for loanable funds keeps interest rates relatively high. These high interest rates plus the attractive business environment in the United States draw funds to this country from around the world.

As previously stated, that inflow of foreign funds keeps the value of the dollar high in terms of other currencies. Even so, the inflow supplements the limited supply of domestic loanable funds so that the massive federal deficit can be financed without crowding out private investment or driving interest rates even higher.

Consequences of the strong dollar and resulting deficits in our balance of trade are far-reaching and not entirely undesirable.

Lower priced imports are helping keep inflation at remarkable low levels. This is true not only for imported consumer goods but also for, and with even greater impact, the raw materials and semi-finished goods that are inputs into American industry.

Also our deficit is stimulating recovery among other countries from the recent world-wide recession and a prosperous world makes better customers for American exports. Developing nations, such as Brazil and Mexico, are benefiting as well as more developed countries in Europe and Asia.

However, the highly valued dollar and trade deficits are creating considerable hardship in some domestic industries. American farmers (not because they are any less efficient than in the past but because of the rising exchange rate) are losing the foreign markets that are so crucial to their survival. When the exchange rate falls, as eventually it will, our farmers may find it difficult to reclaim those lost markets. Other industries ranging from shoes and textiles to finished steel and electronics equipment are finding it more difficult to compete with foreign manufacturers both at home and abroad. Some firms are meeting the problem by shifting production out of the U.S.

The loss of jobs and income in these domestic industries is raising the demand in some quarters for quotas and tariffs to protect home industries from cheaper foreign goods. While trade barriers may benefit specific industries, the inevitable result is higher prices for those goods to the consumer.

To a great extent the strength of the American economy—the strong recovery, low levels of inflation, and growth prospects—is a source of our problem in that it makes the United States an attractive haven for foreign investors. However, the continued high federal budget deficit certainly aggrevates the situation. As in the case of some other nagging economic problems we face in the United States, a solution depends on first bringing the budgetary deficit under control.

ARKANSAS POPULATION UPDATE

In 1980 the population of the state of Arkansas was 2,298,600. As estimated by the Bureau of Economic Analysis, U.S. Department of Commerce, the 1983 population was 2,327,900, a percentage increase of 1.3 for that period. Listed below are similar population figures for Arkansas' counties that may be of interest to our readers. Of the 75 counties, 41 showed increases in population, 12 held their own, and 22 showed decreases.

County	1980 Population	1983 Population	Percent Change
	(in thousands)		
Arkansas	24.2	24.1	− 0.4
Ashley	26.6	26.5	− 0.4
Baxter	27.6	28.9	+ 4.7
Benton	79.0	82.3	+ 4.2
Boone	26.4	27.2	+ 3.0
Bradley	13.8	13.5	− 2.2
Calhoun	6.1	6.1	0.0
Carroll	16.4	17.1	+ 4.3
Chicot	17.8	18.1	+ 1.7
Clark	23.4	23.2	− 0.9
Clay	20.6	20.1	− 2.4
Cleburne	17.1	18.1	+ 5.8
Cleveland	7.9	8.1	+ 2.5
Columbia	26.7	27.3	+ 2.2
Conway	19.6	19.4	− 1.0
Craighead	63.5	62.9	− 0.9
Crawford	37.2	38.6	+ 3.8
Crittenden	49.4	50.0	+ 1.2
Cross	20.4	20.6	+ 1.0
Dallas	10.5	10.8	+ 2.9
Desha	19.8	19.7	− 0.5
Drew	18.0	18.0	0.0
Faulkner	46.7	48.4	+ 3.6
Franklin	14.8	15.2	+ 2.7
Fulton	10.0	10.2	+ 2.0
Garland	70.3	72.8	+ 3.6
Grant	13.1	13.0	− 0.8
Greene	30.8	31.1	+ 1.0
Hempstead	23.8	23.6	− 0.8
Hot Spring	27.0	27.0	0.0
Howard	13.5	13.5	0.0
Independence	30.5	32.1	+ 5.2
Izard	10.9	11.0	+ 0.9
Jackson	21.7	21.7	0.0
Jefferson	91.4	90.4	− 1.1
Johnson	17.5	18.0	+ 2.9
Lafayette	10.2	10.1	− 1.0
Lawrence	18.5	18.5	0.0

Lee	15.5	15.6	+ 0.6
Lincoln	13.4	13.3	− 0.7
Little River	14.1	14.1	0.0
Logan	20.2	20.2	0.0
Lonoke	34.7	36.0	+ 3.7
Madison	11.5	11.6	+ 0.9
Marion	11.4	12.0	+ 5.3
Miller	38.1	38.9	+ 2.1
Mississippi	59.4	59.1	− 0.5
Monroe	14.0	13.8	− 1.4
Montgomery	7.8	7.7	− 1.3
Nevada	11.1	11.1	0.0
Newton	7.8	8.1	+ 3.8
Ouachita	30.7	32.2	+ 4.9
Perry	7.3	7.7	+ 5.5
Phillips	34.6	34.0	− 1.7
Pike	10.5	10.1	− 3.8
Poinsett	27.0	26.3	− 2.6
Polk	17.0	17.3	+ 1.8
Pope	39.3	41.0	+ 4.3
Prairie	10.2	10.2	0.0
Pulaski	342.9	347.8	+ 1.4
Randolph	16.9	16.6	− 1.8
St. Francis	30.9	31.3	+ 1.3
Saline	53.4	55.1	+ 3.2
Scott	9.8	9.8	0.0
Searcy	8.9	8.9	0.0
Sebastian	95.4	96.2	+ 0.8
Sevier	14.2	14.3	+ 0.7
Sharp	14.8	15.2	+ 2.7
Stone	9.1	9.6	+ 5.5
Union	50.2	48.8	− 2.8
Van Buren	13.5	14.3	+ 5.9
Washington	100.6	102.6	+ 2.0
White	51.2	52.0	+ 1.6
Woodruff	11.3	10.8	− 4.4
Yell	17.0	17.7	+ 4.1

Top Ten: Population Gain 1980-83 (%)		Top Ten: Population Loss 1980-83 (%)	
Van Buren	+ 5.9	Woodruff	− 4.4
Cleburne	+ 5.8	Pike	− 3.8
Stone	+ 5.5	Union	− 2.8
Perry	+ 5.5	Poinsett	− 2.6
Marion	+ 5.3	Clay	− 2.4
Independence	+ 5.2	Bradley	− 2.2
Ouachita	+ 4.9	Randolph	− 1.8
Baxter	+ 4.7	Phillips	− 1.7
Pope	+ 4.3	Monroe	− 1.4
Carroll	+ 4.3	Montgomery	− 1.3

ANNOUNCEMENT

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SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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THE ARKANSAS ECONOMY: A POSSIBLE SLOWDOWN IN PROGRESS

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The latest available figures indicate that the earlier estimate of Personal Income in the second quarter was somewhat high. The growth rate has been revised downward from percent to 1.3 percent, or well below the growth rate for 1984. The recent performance of Personal Income, as well as that of other indicators, tends to support the conclusion that the expansion in economic activity enjoyed since 1982 is beginning to slow.

In July, the civilian labor force reached a record level of over 1.07 million. Similarly, total employment (seasonally adjusted) continued to advance from its February trough. However, the number of manufacturing jobs in July was only slightly above that of May and still below the average level for 1984. Moreover, the growth in the civilian labor force outstripped the increase in jobs so that the unemployment rate, seasonally adjusted, returned to the 9 percent level for the first time this year.

Value added by manufacture was virtually unchanged between the first and second quarters. In the issue of the *Review* just prior to this one, it was reported that the value of construction contracts was up sharply in the second quarter. Revisions in these data, including deseasonalization, indicate this was not so in residential construction. Indeed, residential construction grew modestly but was still at a relatively low level. While growing more briskly, nonresidential construction still remained below the peak level of 1984.

Recent revisions by the U.S. Department of Agriculture, of the data reflecting Cash Receipts from Farm Marketings indicate that 1984 was somewhat better for agriculture than earlier reported. However, Cash Receipts in 1984 were below those of 1980 and 1982, and only slightly above the 1979 level.

Inbound traffic on the McClellan-Kerr Waterway increased in the second quarter, while outbound traffic declined. Total traffic, while rising, continued to be below the 1984 level.

Savings and loan activity increased, particularly with respect to loans. This is likely to result in lower interest rates since there appeared to be little change in residential construction during the period.

The debate continues as to whether the national economy will, on the one hand, continue to weaken or, on the other, is poised to enter a period of higher growth rates. At this time, the former seems more probable meaning that a further weakening in the Arkansas economy can be expected. This is emphasized by the continuing problems of the farm sector and by off-shore competition for Arkansas' low-wage industries.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,016,100	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
	July	1,038,460	943,560	61,610	209,690	9.0
	Aug.	1,045,860	952,420	61,520	210.850	8.8
	Sept.	1,049,210	952,730	61,440	210,820	9.1
	Oct.	1,054,120	955,220	61,310	210,750	9.3
	Nov.	1,053,700	955,600	61,200	208,820	9.3
	Dec.	1,057,410	959,550	61,160	213,850	9.3
1985						
	Jan.	1,018,890	936,760	61,180	214,930	8.1
	Feb.	1,009,010	928,820	60,930	213,840	8.3
	March	1,012,970	932,510	60,940	211,860	8.1
	April	1,022,730	941,610	60,860	207,420	7.9
	May	1,028,340	951,240	60,700	209,000	7.4
	June	1,045,220	966,840	60,660	209,170	7.9
	July	1,071,310	974,070	60,600	209,660	9.0

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1983 Q-IV thru 1984 Q-I	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II
Arkansas	+ 3.8	+ 0.9	+ 2.9	+ 0.9	+ 1.1	+ 1.3
United States	+ 2.9	+ 2.1	+ 2.1	+ 1.6	+ 1.5	+ 1.0

Personal Income in Arkansas

(Seasonally adjusted, annual rate,
Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	12,790	14,640	15,892	17,862	19,118	20,212	22,321	23,629
Apr-Jun	13,206	14,774	15,851	18,078	19,317	20,522	22,514	23,941[P]
Jul-Sep	13,798	15,208	16,527	18,811	19,447	20,968	23,165	
Oct-Dec	14,102	15,640	17,005	18,912	19,922	21,505	23,369	
Annual	13,474	15,066	16,319	18,416	19,451	20,802	22,842	

[R] = revised preliminary estimate

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II
Arkansas	+ 0.9	+ 1.2	+ 1.2	+ 2.1	0.0
United States	+ 2.1	+ 1.6	− 0.6	+ 0.5	+ 0.5

Value Added by Manufacture in Arkansas

(Seasonally adjusted annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	5,272.9	5,915.7	6,523.2	7,158.6	7,427.7	7,859.4	8,772.0	9,256.3
Apr-Jun	5,503.3	6,037.5	6,390.0	7,358.6	7,514.9	8,089.0	8,848.2	9,259.2
Jul-Sep	5,612.0	6,119.5	6,633.7	7,565.0	7,492.9	8,322.1	8,952.7	
Oct-Dec	5,703.7	6,268.1	6,896.7	7,568.0	7,674.1	8,458.5	9,064.6	
Annual	5,523.0	6,085.2	6,610.9	7,412.5	7,527.4	8,182.2	8,909.4	

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1983 Q-III thru 1983 Q-IV	1983 Q-IV thru 1984 Q-I	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I
Arkansas	– 14.9	+ 21.6	– 7.1	– 3.4	+ 4.5	NA
United States	– 10.7	+ 4.5	+ 3.5	+ 6.4	– 2.8	– 4.2

NA - not available

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1977	1978	1979	1980	1981	1982	1983	1984
Quarter								
Jan-Mar	2,270,908	3,139,796	3,442,336	3,410,760	2,990,044	3,354,452	2,833,156	3,408,036
Apr-Jun	2,810,088	2,715,736	3,059,744	3,554,600	2,806,176	3,795,964	2,641,692	3,165,680
Jul-Sep	2,226,472	3,082,684	3,076,148	3,870,404	3,052,440	3,163,160	3,292,736	3,058,936
Oct-Dec	2,335,200	2,986,880	3,143,660	4,576,516	2,987,076	3,200,636	2,801,852	3,197,856
Annual	2,410,667	2,981,274	3,180,472	3,853,070	2,958,934	3,378,553	2,892,359	3,207,627

ACTIVITY OF ARKANSAS SAVINGS AND LOAN ASSOCIATIONS

Quarterly Changes in Activity of Arkansas S & L Associations

(Not seasonally adjusted, Percent)

	1983 Q-IV thru 1984 Q-I	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II
Total New Loans	+ 17.9	− 41.5	− 17.3	+ 5.2	− 25.1	+ 60.1
Net Savings Change	+ 15.5	− 6.1	+ 0.7	+ 5.3	− 61.2	+ 59.4

Economic Activity of Arkansas Savings and Loan Associations

(Not seasonally adjusted, Thousands of dollars)

		Total New Loans	Net Savings Change
Year	Quarter	Current $	Current $
1978		729,300	416,900
1979		625,900	436,830
1980		504,700	287,600
1981		360,800	20,000
1982		677,400	353,800
1983		2,370,300	1,446,300
1984		1,836,600	1,075,000
	Jul-Sep	344,800	262,000
	Oct-Dec	362,600	276,000
1985	Jan-Mar	271,600	107,100
	Apr-Jun	434,800	170,700

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1983 Q-IV thru 1984 Q-I	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II
Total	+ 16.7	+ 9.9	− 4.2	− 5.7	− 19.1	+ 15.8
Internal	+ 30.0	+ 10.8	− 14.0	− 16.7	− 21.6	+ 76.5

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

		Traffic Tonnages			
Year	Quarter	Inbound	Outbound	Internal	Total*
1978		2,595	3,899	3,170	10,216
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
	Jul-Sep	2,311	4,543	2,421	9,647
	Oct-Dec	1,834	4,604	2,018	9,099
1985	Jan-Mar	1,827	3,269	1,582	7,357
	Apr-Jun	2,511	2,494	2,792	8,522

*Total tonnage includes "through traffic."

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1977	1978	1979	1980	1981	1982	1983	1984	1985
Quarter									
Jan-Mar	635,344	880,912	838,008	613,040	550,568	511,940	895,484	1,044,788	777,160
Apr-Jun	710,624	988,740	645,112	564,516	642,712	598,212	919,996	975,436	783,320^R
Jul-Sep	729,692	903,144	756,032	696,460	548,380	689,232	908,188	900,232	
Oct-Dec	841,276	888,712	575,136	686,040	585,608	780,880	901,384	773,368	
Annual	733,851	992,005	706,530	664,550	632,800	648,130	906,260	917,550	

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1977	1978	1979	1980	1981	1982	1983	1984	1985
Quarter									
Jan-Mar	241,164	314,489	371,300	289,236	356,916	376,064	269,324	417,860	337,100
Apr-Jun	241,572	228,472	420,520	349,804	278,808	210,008	353,504	437,076	405,470
Jul-Sep	282,788	383,588	296,012	396,316	259,592	317,844	389,684	543,684	
Oct-Dec	287,676	262,064	441,984	390,148	311,048	220,548	473,460	481,360	
Annual	265,710	292,842	381,809	355,100	302,100	279,600	370,100	467,700	

^{R} = revised

LABOR FORCE ESTIMATES
June 1985, not seasonally adjusted

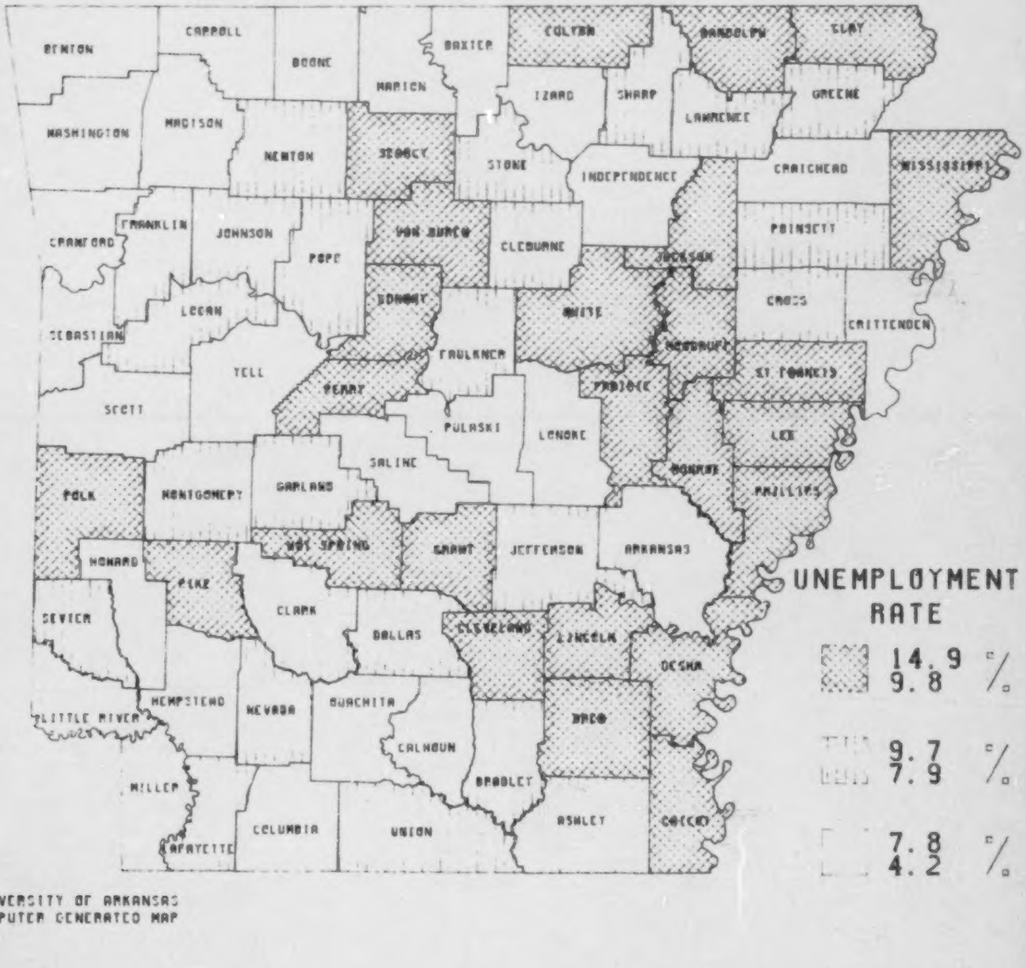
State and MSA's	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	116,572,000	7.5	107,819,000
STATE OF ARKANSAS	1,061,600	7.8	978,800
Fayetteville-Springdale MSA (Washington County)	50,025	4.2	47,900
Fort Smith MSA (Crawford & Sebastian Counties in Arkansas and Sequoyah County in Oklahoma)	84,650	7.5	78,275
Little Rock-North Little Rock MSA (Faulkner, Lonoke, Pulaski & Saline Counties)	235,275	6.3	220,425
Pine Bluff MSA (Jefferson County)	39,625	8.4	36,300

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	11,800	8.1	10,850	Lee	4,875	12.8	4,250
Ashley	10,850	9.2	9,850	Lincoln	3,850	11.7	3,400
Baxter	11,050	5.7	10,425	Little River	6,800	6.6	6,350
Benton	39,975	5.0	37,975	Logan	7,700	9.7	6,950
Boone	14,450	5.7	13,625	Lonoke	17,325	6.1	16,275
Bradley	5,300	8.5	4,850	Madison	6,425	6.6	6,000
Calhoun	2,900	7.8	2,675	Marion	6,800	4.4	6,500
Carroll	10,675	5.2	10,125	Miller	17,375	7.8	16,025
Chicot	6,725	11.5	5,950	Mississippi	26,300	12.8	22,925
Clark	10,125	8.1	9,300	Monroe	5,050	13.9	4,350
Clay	9,400	14.9	8,000	Montgomery	2,800	8.9	2,550
Cleburne	7,850	9.2	7,125	Nevada	4,375	8.0	4,025
Cleveland	1,800	12.5	1,575	Newton	3,275	9.2	2,975
Columbia	13,650	5.7	12,875	Ouachita	14,850	6.7	13,850
Conway	8,000	14.7	6,825	Perry	3,150	14.3	2,700
Craighead	31,750	6.8	29,600	Phillips	12,375	12.1	10,875
Crawford	19,425	6.8	18,100	Pike	3,900	11.5	3,450
Crittenden	24,850	6.6	23,200	Poinsett	10,775	9.5	9,750
Cross	8,950	8.1	8,225	Polk	5,600	12.1	4,925
Dallas	3,975	8.8	3,625	Pope	19,375	8.6	17,700
Desha	7,575	11.9	6,675	Prairie	4,075	9.8	3,675
Drew	8,250	10.6	7,375	Pulaski	167,025	5.8	157,325
Faulkner	24,125	9.2	21,900	Randolph	7,525	10.3	6,750
Franklin	6,025	7.9	5,550	St. Francis	13,350	13.3	11,575
Fulton	3,050	11.5	2,700	Saline	26,800	7.0	24,925
Garland	31,300	7.9	28,825	Scott	4,225	5.3	4,000
Grant	4,275	9.9	3,850	Searcy	2,950	11.0	2,625
Greene	14,175	8.6	12,950	Sebastian	48,725	7.3	45,150
Hempstead	10,975	6.4	10,275	Sevier	6,900	8.0	6,350
Hot Spring	10,975	12.5	9,600	Sharp	4,875	8.2	4,475
Howard	8,250	5.2	7,825	Stone	3,775	9.3	3,425
Independence	16,400	7.0	15,250	Union	24,075	7.9	22,175
Izard	4,450	5.6	4,200	Van Buren	4,600	11.4	4,075
Jackson	9,525	11.8	8,400	Washington	50,025	4.2	47,900
Jefferson	39,625	8.4	36,300	White	23,175	9.9	20,875
Johnson	9,150	7.9	8,425	Woodruff	4,650	10.2	4,175
Lafayette	3,525	8.5	3,225	Yell	8,150	6.1	7,650
Lawrence	8,575	9.6	7,750				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
JUNE 1985

IN JUNE, ARKANSAS' CIVILIAN LABOR FORCE INCREASED BY 18,600 TO TOTAL 1,061,600. TOTAL EMPLOYMENT INCREASED 10,800 TO TOTAL 978,800. UNEMPLOYMENT FELL 7,800 TO TOTAL 82,800. OF THE 75 COUNTIES, WASHINGTON HAD THE LOWEST UNEMPLOYMENT RATE AT 4.2 PERCENT AND CLAY HAD THE HIGHEST AT 14.9 PERCENT. MOREOVER, THE UNEMPLOYMENT RATES IN 52 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.2 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 8.4 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH MSAS WERE 7.3 AND 7.5 PERCENT, RESPECTIVELY.


BENTON
CARROLL
BOONE
MARION
BAXTER
FULTON
RANDOLPH
CLAY
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
IZARD
SHARP
LAWRENCE
GREENE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBASTIAN
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CONWAY
WHITE
CROSS
CRITTENDEN
YELL
FAULKNER
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PRAIRIE
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LEE
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MONTGOMERY
GARLAND
SALINE
MONROE
PHILLIPS
HOWARD
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
SEVIER
PIKE
CLARK
DALLAS
CLEVELAND
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
DREW
MILLER
BRADLEY
ASHLEY
CHICOT
LAFAYETTE
COLUMBIA
UNION
UNEMPLOYMENT RATE
14.9 %
9.8 %
9.7 %
7.9 %
7.8 %
4.2 %

UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

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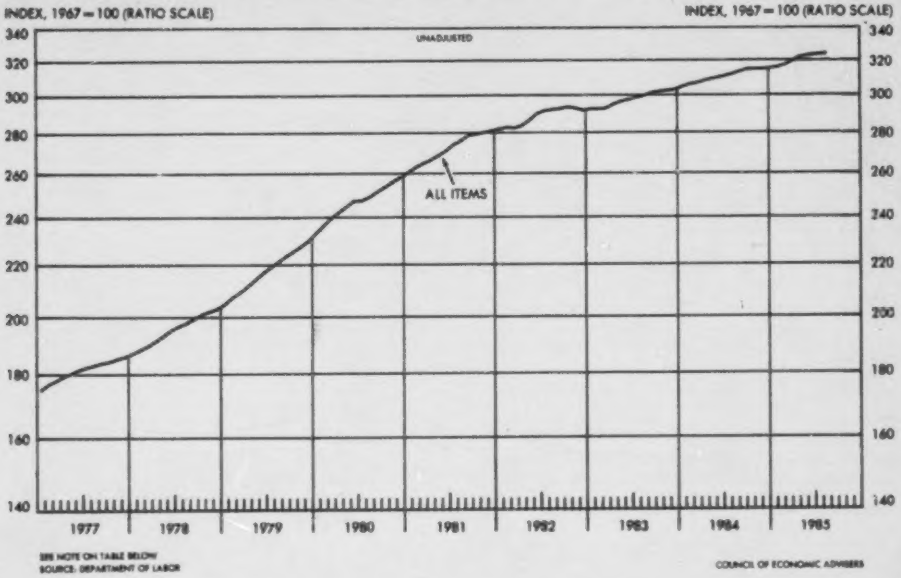
CONSUMER PRICES

In August, the consumer price index for all urban consumers rose 0.2 percent seasonally adjusted and not seasonally adjusted. The index was 3.4 percent above its year earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1] NSA	Food	Housing							Apparel and upkeep	Transportation			Medical care	Energy [4]	All items less food, energy, and shelter
			Total [1]	Shelter					Fuel and other utilities		Total [1]	New cars	Motor fuel [3]			
				Total	Renters' costs [2]	Homeowners' costs [2] NSA	Maintenance and repairs NSA									
Rel. imp.[5]	*100.0*	*18.7*	*37.7*	*21.8*	*7.1*	*14.1*	*0.5*		*8.2*	*5.1*	*21.6*	*3.4*	*5.5*	*6.3*	*11.5*	*48.0*
1977	181.5	192.2	186.5	191.1	....	....	214.7		202.2	154.2	177.2	142.9	188.2	202.4	207.3	160.5
1978	195.4	211.4	202.8	210.4	....	....	233.0		216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7	....	....	256.4		239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7	....	....	285.7		278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7	....	....	314.4		319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0	....	....	334.1		350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3		370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2		387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1984: Aug	313.0	304.2	338.5	364.1	109.4	108.1	360.1		391.1	200.5	311.8	209.1	361.7	382.0	421.5	272.9
Sept	314.5	304.4	340.2	366.0	109.9	108.7	362.7		392.6	201.5	312.8	210.2	364.6	383.6	423.7	273.9
Oct	315.3	305.4	340.5	367.4	110.4	109.1	361.6		390.3	203.0	313.9	210.8	367.4	385.8	423.4	274.7
Nov	315.3	305.9	341.2	368.6	110.9	109.4	362.9		390.4	202.7	314.5	210.6	369.3	387.4	424.0	275.2
Dec	315.5	307.2	341.8	370.1	111.4	109.8	364.4		389.4	202.4	315.0	210.9	368.8	389.0	423.0	275.9
1985: Jan	316.1	307.7	342.3	371.0	111.8	110.0	366.0		389.1	202.4	315.8	211.6	363.8	390.3	419.8	277.2
Feb	317.4	309.3	343.7	373.2	112.4	110.7	366.8		388.1	204.3	315.6	213.3	354.2	392.0	414.1	278.7
Mar	318.8	309.2	344.6	374.2	112.9	110.8	370.0		389.8	205.3	319.7	214.3	367.6	395.3	422.1	279.9
Apr	320.1	308.7	345.9	375.7	113.5	111.3	368.0		392.0	205.4	322.3	214.3	378.7	397.5	429.9	280.4
May	321.3	308.3	348.1	379.4	114.6	112.4	366.2		392.7	205.2	321.6	213.9	380.5	399.9	431.2	280.5
June	322.3	308.5	349.2	380.9	115.1	112.8	367.6		395.0	205.8	321.2	214.5	381.3	402.6	431.9	281.1
July	322.8	308.8	350.2	383.0	115.8	113.5	367.8		394.9	205.3	320.7	214.9	380.2	404.5	430.6	281.5
Aug	323.5	308.9	351.9	385.6	116.5	114.3	370.6		394.4	205.9	319.5	215.7	376.6	406.5	427.9	282.1

[1] Includes items not shown separately.
[2] December 1982 = 100.
[3] Includes direct pricing of diesel and gasohol beginning September 1981.
[4] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.
[5] Relative importance, December 1984.

NOTE.—NSA indicates data are not seasonally adjusted.

Data beginning 1978 are for all urban consumers; earlier data are for urban wage earners and clerical workers.

Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

REVIEW EDITORIAL POLICY STATEMENT

The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

For a book: list (as appropriate) author's first name, middle initial, and surname; the title of the book; publication data including place, publisher, and date; and the page number(s) in the citation.

For an article in periodical: list (as appropriate) the author's first name, middle initial, and surname; title of the article; name of the periodical; volume number or month and year for the issue; and page number(s) in the citation.

EDITOR'S NOTE

As a part of the continuing effort to enhance the quality of the *Review*, the research staff of the Bureau of Business and Economic Research is engaged in a program of work directed toward improving the "Economic Indicator" data series. At this time, work has been completed on all data series except that reflecting savings and loan activity. As subsequent issues of the *Review* are released, further improvements in the series will continue to be announced.

Data are published, where possible, in a seasonally adjusted, annual rate format which is consistent with that in which national data are ordinarily published. While complete historical series are not published in this format, they are available upon request.

It should be noted that the most substantial revisions in the modified data series are in the data on value added by manufacture and cash receipts from farm marketings. The newly developed estimating equation for value added captures price changes and also appears to have much higher statistical reliability than previously utilized in the equation. Inclusion of price changes, in particular, contributes to substantially higher new estimates for value added than those published previously. Farm cash receipts have been modified to reflect both the latest available estimates and the new seasonal indices. At this juncture, every seasonally adjusted series published in the *Review* uses the same deseasonalization process.

The staff, as always, welcomes comments and suggestions for further improvement.

5/7/86 U5930-1

ARKANSAS
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Arkansas Business and Economic Review

A Publication of the University of Arkansas

Volume 18, Number 3, 1985

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**Published Quarterly by
Bureau of Business and Economic Research
College of Business Administration
University of Arkansas
Fayetteville, Arkansas 72701**

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ELECTRIC ENERGY USAGE AND COSTS FOR MANUFACTURING FIRMS IN ARKANSAS AS COMPARED TO OTHER LOCATIONS

Phillip Taylor
Director, Bureau of Business and Economic Research
University of Arkansas, Fayetteville
Mary Hirsch
Instructor
University of Arkansas, Fayetteville

INTRODUCTION

The data for 1978 (the most recent available from the U.S. Department of Commerce) indicate that electric energy consuming industries in Arkansas varied somewhat from the national averages with respect to the amount of electricity purchased per dollar value of shipments, per dollar value added by manufacture, total cost per employee, and cost per kilowatt hour (kwh). Comparisons of the cost experience in Arkansas and in other states continue to be of interest since it is obvious that most plants located in Arkansas compete at least on a regional basis, and some, nationally or internationally.

When electric energy purchased per dollar of value of shipments in Arkansas in 1978 is compared to the national averages, seven of the eighteen Standard Industrial Classification (SIC) groups show Arkansas industrial customers in a favorable position (Table 1). Arkansas plants fared even better with respect to electric energy purchased per dollar of value added by manufacture with nine of the SIC categories below the U.S. experience (Table 2). In that same year, nine of the SIC groups in Arkansas spent fewer dollars on electrical energy per employee than the national average for their industries (Table 3). Moreover, when viewed from the standpoint of electric energy costs per kwh consumed, Arkansas industrial customers had electric energy costs less than the national average in twelve of eighteen or two-thirds of the SIC classifications (Table 4).

RECENT COMPARISONS

The average cost of electric energy for industrial customers in Arkansas was \$0.0371 per kwh in 1982 and \$0.0387 per kwh in 1983. Customers of Arkansas Power and Light Company (AP&L) in this class had costs \$0.0003 and \$0.0012 below the average for Arkansas in 1982 and 1983, respectively. Available data on the average industrial rates of utilities that are members of the Edison Electric Institute (EEI) Rate Research Committee show that AP&L reported a mean industrial rate of \$0.03701[1] per kwh in 1982. Of the 99 operating companies included in this report, only eleven had rates lower than AP&L. When the study was repeated in 1983, AP&L, with a mean rate of \$0.0377 per kwh, ranked tenth among 113 reported operating systems. Had only the Arkansas **portion** of AP&L, at \$0.0375 per kwh, been included in the 1983 EEI study, it would have tied with Gulf States Utilities Company for the eighth position.

The Tennessee Valley Authority collects cost estimate data based on theoretical levels of peak demand, load factors, etc., so that a given operating company's relative position may vary over the range of assumptions. In January 1984, the indus-

TABLE 1
Electric Energy Purchased per Dollar of Value of Shipments Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974 Arkansas	1978 Arkansas	1978 U.S.
20	Food and Kindred Products	$0.0043	$0.0065	$0.0056
201	Meat Products	0.0048	0.0065	-------
203	Preserved Fruits and Vegetables	0.0044	0.0063	-------
204	Grain Mill Products	0.0026	0.0061	-------
22	Textile Mill Products	0.0121	0.0126	0.0169
23	Apparel, Oth. Textile Prods.	0.0043	0.0086	0.0058
232	Men's and Boy's Furnishings	0.0045	0.0106	-------
233	Women's and Misses' Outerwear	0.0055	0.0066	-------
24	Lumber and Wood Products	0.0126	0.0161	0.0093
242	Sawmills and Planning Mills	0.0192	0.0231	-------
243	Millwork, Plywood, Stuc. Membs.	0.0173	0.0139	-------
249	Miscellaneous Wood Products	0.0143	0.0189	-------
25	Furniture and Fixtures	0.0073	0.0091	0.0077
26	Paper and Allied Products	0.0135	0.0210	0.0184
27	Printing and Publishing	0.0054	0.0073	0.0064
28	Chemicals, Allied Products	0.0136	0.0174	0.0242
29	Petroleum and Coal Products	0.0076	0.0072	0.0072
30	Rubber, Misc. Plastics Prod.	0.0094	0.0163	0.0161
31	Leather, Leather Products	0.0046	0.0067	0.0060
32	Stone, Clay, Glass Products	0.0159	0.0207	0.0217
33	Primary Metal Industries	0.0681	0.0734	0.0286
34	Fabricated Metal Products	0.0067	0.0107	0.0084
344	Fabricated Struc. Metal Prods.	0.0050	0.0073	-------
349	Mis. Fabricated Metal Products	0.0070	0.0139	------
35	Machinery, Except Electric	0.0056	0.0063	0.0067
36	Electric, Electronic Equip	0.0042	0.0056	0.0078
37	Transportation Equipment	0.0062	0.0039	0.0051
371	Motor Vehicles and Equipment	0.0047	0.0034	-------
38	Instruments, Related Goods		0.0028	0.0055

Source: *1974 Annual Survey of Manufactures* and *1978 Annual Survey of Manufactures*, U.S. Department of Commerce, Bureau of the Census.

trial rates estimated for AP&L did indeed vary according to the assumptions utilized but were generally in the bottom fourth of the twenty-five utility companies included in the analysis.

While **industrial** rates are more inclusive than **manufacturing** firm rates, there is no reason to assume the relative position for AP&L with respect to rates for manufacturing firms would be substantially different for the broader industrial grouping. Moreover, given the similarity between the average rates for all Arkansas electric utilities and AP&L, it would seem that they would have similar rankings.

CONCLUSIONS

The data indicate that current Arkansas industrial rates, particularly those of AP&L, compare quite favorably to such

TABLE 2
Electric Energy Purchased per Dollar of Value Added by Manufacture Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974 Arkansas	1978 Arkansas	1978 U.S.
20	Food and Kindred Products	$0.0253	$0.0311	$0.0193
201	Meat Products	0.0265	0.0355	-------
203	Preserved Fruits and Vegetables	0.0132	0.0162	-------
204	Grain Mill Products	0.0319	0.0450	------
22	Textile Mill Products	0.0289	0.0336	0.0416
23	Apparel, Oth. Textile Prods.	0.0071	0.0141	0.0117
232	Men's and Boy's Furnishings	0.0072	0.0159	-------
233	Women's and Misses' Outerwear	0.0094	0.0111	-------
24	Lumber and Wood Products	0.0256	0.0385	0.0229
242	Sawmills and Planning Mills	0.0420	0.0492	-------
243	Millwork, Plywood, Stuc. Membs.	0.0547	0.0351	-------
249	Miscellaneous Wood Products	0.0064	0.0494	-------
25	Furniture and Fixtures	0.0148	0.0182	0.0148
26	Paper and Allied Products	0.0298	0.0531	0.0429
27	Printing and Publishing	0.0071	0.0106	0.0100
28	Chemicals, Allied Products	0.0263	0.0372	0.0511
29	Petroleum and Coal Products	0.0215	0.0427	0.0456
30	Rubber, Misc. Plastics Prod.	0.0168	0.0306	0.0328
31	Leather, Leather Products	0.0087	0.0119	0.0123
32	Stone, Clay, Glass Products	0.0258	0.0388	0.0401
33	Primary Metal Industries	0.2041	0.2278	0.0762
34	Fabricated Metal Products	0.0134	0.0212	0.0168
344	Fabricated Struc. Metal Prods.	0.0123	0.0159	-------
349	Mis. Fabricated Metal Products	0.0132	0.0283	-------
35	Machinery, Except Electric	0.0104	0.0125	0.0122
36	Electric, Electronic Equip	0.0096	0.0126	0.0137
37	Transportation Equipment	0.0163	0.0102	0.0132
371	Motor Vehicles and Equipment	0.0093	0.0086	-------
38	Instruments, Related Goods	---	0.0059	0.0085

Source: *1974 Annual Survey of Manufactures* and *1978 Annual Survey of Manufactures*, U.S. Department of Commerce, Bureau of the Census.

rates in other parts of the nation. Whether that advantage for AP&L will remain in the future depends on the level of allocation of Grand Gulf and, of more importance, on AP&L's success in its attempt to defeat the System average costing issue. Moreover, elsewhere in the nation many large power units are "coming on-line" and, as this occurs, there will be significant rate impacts. Relative rankings will continue to fluctuate but, assuming similar factors are operable throughout most states, Arkansas users may continue to enjoy relative advantages in electric energy costs.

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[1] This number, as well as that for 1983, differs slightly from those reported in the previous paragraph. The averages used for comparisons in Arkansas reflect only the Arkansas portion of AP&L. When reporting to the EEI, the entire AP&L operating system is included.

TABLE 3
Electric Energy Purchased per Employee
Arkansas (1974 and 1978) and United States (1978)

SIC		1974	1978	
Code	Description	Arkansas	Arkansas	U.S.
20	Food and Kindred Products	$ 433.73	$ 793.23	$ 785.36
201	Meat Products	293.58	517.24	-------
203	Preserved Fruits and Vegetables	263.16	540.00	-------
204	Grain Mill Products	730.77	1,714.29	-------
22	Textile Mill Products	477.27	833.33	826.87
23	Apparel, Oth. Textile Prods.	70.06	194.44	188.61
232	Men's and Boy's Furnishings	65.42	228.92	-------
233	Women's and Misses' Outerwear	97.56	116.67	-------
24	Lumber and Wood Products	440.76	970.44	599.42
242	Sawmills and Planning Mills	500.00	1,310.00	-------
243	Millwork, Plywood, Stuc. Membs.	724.14	1,129.03	-------
249	Miscellaneous Wood Products	516.13	909.09	-------
25	Furniture and Fixtures	175.00	316.24	311.64
26	Paper and Allied Products	1,159.57	2,351.85	1,639.21
27	Printing and Publishing	176.47	312.50	313.42
28	Chemicals, Allied Products	1,413.04	2,169.23	3,478.53
29	Petroleum and Coal Products	545.45	1,545.45	5,014.84
30	Rubber, Misc. Plastics Prod.	444.44	922.33	927.27
31	Leather, Leather Products	81.40	180.56	202.13
32	Stone, Clay, Glass Products	529.41	1,489.80	1,413.42
33	Primary Metal Industries	5,044.78	6,545.45	2,933.18
34	Fabricated Metal Products	238.81	546.67	526.74
344	Fabricated Struc. Metal Prods.	190.48	371.43	-------
349	Mis. Fabricated Metal Products	242.42	653.06	-------
35	Machinery, Except Electric	207.92	358.78	429.23
36	Electric, Electronic Equip	171.30	338.84	420.83
37	Transportation Equipment	264.71	254.24	517.88
371	Motor Vehicles and Equipment	162.16	264.71	-------
38	Instruments, Related Goods	---	200.00	308.62

Source: *1974 Annual Survey of Manufactures* and *1978 Annual Survey of Manufactures*, U.S. Department of Commerce, Bureau of the Census.

TABLE 4
Electric Energy Costs per Kwh
Arkansas (1974 and 1978) and United States (1978)

SIC Code	Description	1974 Arkansas	1978 Arkansas	1978 U.S.
20	Food and Kindred Products	$0.0180	$0.0274	$0.0230
201	Meat Products	0.0175	0.0252	-------
203	Preserved Fruits and Vegetables	0.0162	0.0263	-------
204	Grain Mill Products	0.0179	0.0284	-------
22	Textile Mill Products	0.0182	0.0267	0.0265
23	Apparel, Oth. Textile Prods.	0.0154	0.0322	0.0370
232	Men's and Boy's Furnishings	0.0129	0.0330	-------
233	Women's and Misses' Outerwear	0.0221	0.0289	-------
24	Lumber and Wood Products	0.0194	0.0299	0.0260
242	Sawmills and Planning Mills	0.0202	0.0311	-------
243	Millwork, Plywood, Stuc. Membs.	0.0167	0.0262	-------
249	Miscellaneous Wood Products	0.0196	0.0303	-------
25	Furniture and Fixtures	0.0178	0.0293	0.0352
26	Paper and Allied Products	0.0157	0.0246	0.0230
27	Printing and Publishing	0.0155	0.0312	0.0347
28	Chemicals, Allied Products	0.0141	0.0270	0.0216
29	Petroleum and Coal Products	0.0199	0.0256	0.0246
30	Rubber, Misc. Plastics Prod.	0.0133	0.0259	0.0302
31	Leather, Leather Products	0.0210	0.0347	0.0355
32	Stone, Clay, Glass Products	0.0127	0.0265	0.0276
33	Primary Metal Industries	0.0120	0.0173	0.0202
34	Fabricated Metal Products	0.0176	0.0297	0.0325
344	Fabricated Struc. Metal Prods.	0.0202	0.0311	-------
349	Mis. Fabricated Metal Products	0.0193	0.0284	-------
35	Machinery, Except Electric	0.0174	0.0278	0.0319
36	Electric, Electronic Equip	0.0150	0.0236	0.0301
37	Transportation Equipment	0.0157	0.0290	0.0304
371	Motor Vehicles and Equipment	0.0119	0.0290	-------
38	Instruments, Related Goods	---	0.0283	0.0327

Source: *1974 Annual Survey of Manufactures* and *1978 Annual Survey of Manufactures*, U.S. Department of Commerce, Bureau of the Census.

INTEGRATING PENSION PLANS WITH SOCIAL SECURITY

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INTRODUCTION

When the original Social Security Act (the Act) was passed, members of Congress and other supporters touted it as a type of insurance or annuity that the worker had a right to and would receive, based on the amount he or she contributed. Careful study of the Act and subsequent amendments reveals that this is not quite true. While written to attempt a balance between individual equity and social adequacy the Act, as amended, has tipped the balance in favor of so-called social adequacy.

As presently structured, Social Security (SS) payments favor the lower paid worker. The Social Security Administration determines the Primary Insurance Amount (PIA) by ignoring all wages above the taxing limit, and weighting lower portions of wages more heavily than higher portions. A person whose "benchmark year" (the year a worker first reaches age 62, becomes disabled, or dies) is 1983 will have a monthly PIA of:

90% of the first $253 of AIME (Average Indexed Monthly Earnings)
32% of the next $1274 of AIME
15% of AIME over $1527

These percentages remain constant; the "bend point" amounts change to reflect changes in average wages in the index year.[1]

Annual SS benefits for a worker who earns just the maximum taxable wages for thirty years will be less than 25 percent of the final year's pay. (The taxable wage base is the maximum amount of earnings subject to SS tax each year.) A replacement ratio of 100 percent is not necessary to maintain a pre-retirement standard of living because working expenses are less after retirement, but a ratio as low as 25 percent creates severe hardships. In an effort to alleviate those hardships employers may sponsor pension plans to supplement SS benefits. This may create a dilemma: a pension large enough to maintain an accustomed standard of living for all workers may be so large that lower paid workers will receive a wage replacement rate greater than 100 percent. Whether good or bad, that is not the crux of the problem. The real problem is that the cost of paying pensions of that magnitude may be prohibitive if the company is to compete successfully in the market place. Alternatives are: find a less costly way to pay adequate pensions; or forego pension plans. A less costly way is to integrate pension plans with SS payments.

INTEGRATION OBJECTIVE

Objectives are to: assure equitable treatment of all segments of the work force by providing approximately the same replacement ratio to all persons; and provide more benefits for the same expense.

IMPLEMENTING THE OBJECTIVE

Integration is accomplished either by offsetting (at least partially) those earnings at or below the Old Age Security and Disability Insurance (OASDI) taxable wage base, or by applying more weight to the wages above the taxable wage base.

IRS regulations[2] ensure that when private pension plan payments and SS payments are combined they do not provide high-paid workers, officers, and stockholders a higher wage replacement ratio than is provided to low-paid workers.

There are three general approaches to integrating pension plans with SS: (1) deduct a portion of SS benefits from private pension proceeds; (2) exclude a portion (subject to SS taxes) of the recipient's salary when determining pension benefits; and (3) credit a lower benefit rate on salary subject to OASDI taxes and a higher rate to the rest.

There are two basic types of pension plans in the United States today: defined benefit and defined contribution. With defined benefit plans, the sponsor (employer) agrees to provide pension benefits by defining the amount of pension the retiree will receive. Within defined benefit plans there are unit benefit and flat benefit plans. The unit benefit plan base is years of recognized service with the employer. The plan defines a unit of benefit as either a percentage of compensation or a fixed dollar amount for each year of service. If percentage of compensation is used, the inclusive items (salary, commission, bonus, etc.) must be specified in the pension contract. Once specified, a percentage (usually in the range of 1 to 2 percent) is selected. This amount becomes the employee's annual benefit upon retirement.

Unlike unit benefit plans, flat benefit plans do not relate retirement benefits to years of service except to require a minimum qualifying period of service. When qualified under a flat benefit plan, the employee receives a specified portion of a compensation base as an annual retirement benefit. The compensation base may be a career average or the average of the last few years (usually five years) of service. As with the unit benefit, the inclusive items of compensation must be defined.

With defined contribution plans, on the other hand, the employer agrees to contribute a certain amount periodically in the employee's name. At retirement that amount with accumulated interest earnings will purchase a annuity for the retiree. In some cases the sponsor contributes a fixed percentage of the employee's wage to the pension plan. If the employer uses a definite, determinable amount, it is called a money purchase plan.

The two basic integrating methods for defined benefit pension plans are excess plans and deduction (offset) plans. The term "integration level" refers to a point below which compensation may be excluded when determining pension benefits. An excess plan excludes some employees when computing benefits because their wage falls below the integration level. Some excess plans set the integration level such that no employee is completely excluded because of the minimum compensation requirement; others exclude no one but compensate those employees earning above the Social Security tax level at a higher rate; still others exclude some lower paid employees and have two integration levels. Plans qualifying for favorable tax consideration may not provide proportionately greater benefits to employees with compensation above the integration level than to employees with compensation below the integration level.

OFFSET METHOD

Under offset plan rules, all employees must be included in the pension plan, with all benefit rates applying equally to all employees. Then the computed benefit may be offset by a stated percentage of the employee's SS benefit due.

The offset method is the easiest method to use. Under the offset method, "(1) no employee is ineligible to participate because his compensation does not exceed a minimum level, (2) no portion of compensation is excluded in computing benefits, and (3) all provisions including the benefit rates apply uniformly to all covered employees regardless of compensation, except that an employee's benefit otherwise computed under the plan formula is reduced or offset by a stated percentage of such employee's old-age insurance benefit under the Social Security Act."[3] It is a simple concept reducing paper work and automatically adjusting to changes in the Act. Explaining the offset method is easy but ease of explanation may be a mixed blessing. Because it is so easily explained, workers tend to understand it better and perhaps like it less than the other methods even though all methods essentially do the same job.[4] Many workers resent having their pensions reduced merely because of SS benefits they "paid for."

A plan sponsor may currently reduce pension benefits otherwise due by as much as 83⅓ percent of the employee's PIA. This percentage is determined by "crediting the employer with one half of the value of the total OASDI [Old Age Security and Disability Insurance] benefits, namely, 162 percent of the PIA, plus an additional 2⅓ percent apparently designed to produce rounded percentage offsets, ... for certain retirement and disability provisions."[5] Different (higher) percentages may be used when expressing the offset in terms of earlier (smaller) insurance benefits payable under previous versions of the Act.

Consider for example a worker who had earned a salary at least equal to the maximum taxable income for the 32-year period from 1951 through 1982, with 1982 that worker's benchmark year. That worker's PIA would be $657.20. Under present IRS regulations a maximum 83⅓ percent, or $547.67, could be excluded from the monthly pension benefits received from an integrated pension plan. Today the typical maximum offset or deduction is around 50 percent, and is applied only to long-term employees. Some plans stipulate a small percentage (about 1¼ percent) offset per year of service up to a maximum 50 percent offset. The longer the time period or the smaller the yearly percentage, the better for the employee.[6] The offset applies **only** to the employee's own SS benefits, not to those of a spouse or dependent child. The offset is frozen at retirement — future SS increases may not be reduced.

This last makes retirement time critical. Consider two participants with the same work record and in the same pension plan who retire, one just before and one just after an increase in SS benefits. The participant retiring prior to the increase froze the amount of the offset and received the full increase. The other participant, however, received the increase offset by the full percentage amount. Retiring after the effective date of the increase caused the further reduction.

The offset method has several drawbacks. It cannot be used with plans providing for individual insurance and annuity contracts. It relies on the SS payment in determining the amount to be paid at retirement, making the sponsor unable to calculate the employee's final pension until after that has been determined, a time lag of several weeks at best. Probably the biggest drawback is explanation. Only a carefully worded explanation prevents resentment among lower paid workers. Many sponsors using the offset method dwell on the equity aspect rather than the deduction aspect.

COVERED COMPENSATION

When discussing pension plans integrated with SS, "covered compensation" must be understood. "The concept of covered compensation was developed specifically and solely for the articulation of integration levels."[7] It is "the amount of compensation with respect to which old-age and survivors insurance benefits would be provided for [an employee] under the Social Security if for each year until he reaches age 65 his annual compensation is at least equal to the taxable wage base."[8]

FLAT BENEFIT EXCESS PLANS

The employer selects a level of compensation as a cutoff below which full retirement benefits are not accrued. This level is the integration level, sometimes called "breakpoint." It may be a maximum of the individual's covered compensation (see Table 1) based on age (i.e., covered compensation as recorded for the calendar year of that individual's 65th birthday); or it may be a stated amount that is "uniformly applicable to all active participants [of the pension plan] which does not exceed the covered compensation of any individual who is or may become a participant."[9] If the person is retired the amount may not exceed covered compensation.

TABLE 1
Covered Compensation
(Rounded to nearest whole multiple of $600)*

Calendar Year of 65th Birthday	Amount
1978	$ 8,400
1979-1980	9,000
1981	9,600
1982-1983	10,200
1984-1986	10,800
1987-1988	11,400
1989-1992	12,000
1993-1994	12,600
1995-1996	13,200
1997-1998	13,800
1999	14,400
2000-2001	15,000
2002-2003	15,600
2004-2005	16,200
2006-2007	16,800
2008-2012	17,400
2013 and later	17,700

Source: *CCH Pension Plan Guide*, paragraph 2626.
*For exact amounts of covered compensation see *CCH Pension Plan Guide*, paragraph 2626.

Compensation below the integration level may be excluded when determining pension benefits, or benefits may be determined by a different rate for compensation below the integration level. The integration level may be higher than just indicated if the "integration percentage" is adjusted downward. The lower the integration level, the greater the plan benefits (cost to the employer) because the benefit formula is applied to a greater portion of the individual's earnings.

After establishing the integration level, the next step is determining an integration percentage. The current maximum integration percentage, set by IRS rules, is 37.5 percent. That is, in an otherwise qualified integrated flat benefit plan, the maximum pension benefit is 37.5 percent of the average compensation above the integration level. The rationale behind the figure is that the employer's tax paid under the Act provides 37.5 percent of the primary SS benefits paid to retirees. It is reasonable, then, to allow that same amount for compensation paid in excess of the SS tax level.[10]

If the integration level of a flat benefit excess plan exceeds the covered compensation of any participant, the plan still may be qualified and integrated by adjusting the integration percentage downward. To adjust, multiply the standard 37.5 percent level by a fraction whose numerator is the covered compensation of the oldest participant of the plan and whose denominator is the plan's integration level.

As an example, consider a defined flat benefit excess plan established January 1, 1983, covering all employees except those hired within five years of normal retirement age (age 65). Among the participants one employee (the oldest) is scheduled to reach normal retirement age in 1985. The fully qualified plan has an integration level of $12,000, exceeding the IRS maximum of $10,800 for an individual reaching age 65 in 1985 (See Table 1). The maximum integration percentage must be reduced from 37.5 percent to 33.75 percent with the fraction 10,800/12,000. Thus, 33.75 percent, the maximum allowable by IRS regulations, may be applied to the average annual earnings in excess of $12,000 to determine the pension benefits.

One way to avoid reducing the allowable percentage is to state an integration level that varies with the year of retirement. This is more complex and would be more difficult to explain than a single integration level for all plan participants.

The full integration percentage of 37.5 percent may be used only for participants who have 15 or more years of service at normal retirement age. For an employee with less than 15 years of service at normal retirement, the integration percentage may not exceed 2.5 percent per year of service. An employee who retires with ten years of service may have an integration percentage of only (2.5 percent/year x 10 years) 25 percent.

UNIT BENEFIT EXCESS PLAN

A unit benefit excess plan provides for benefits that are based, in part at least, on years of service. The integration level of a unit benefit excess plan may be stated in several ways: (1) for all years of service either the individual's covered compensation (Table 1) or an amount not exceeding the covered compensation of the oldest participant; (2) the taxable wage base for any year of service (this results in yearly increasing integration levels) except that $4,800 may be used for years prior to 1959; (3) for all years prior to a specific date (no later than the end of the year the plan is established or amended), the covered compensation of an employee reaching age 65 in that year; and (4) a stated dollar amount less than (1) through (3) without reducing the benefits or greater with appropriately reduced benefits.

There are two types of unit benefit plans: those whose base is actual compensation, and those whose base is an average of annual compensation. For plans that base benefits on actual compensation over the employee's term of service, the plan is integrated if the normal retirement benefit is equal to or less than 1.4 percent of the average compensation per year of service in excess of the integration level. For plans that base benefits on average annual compensation (a five-year period) the rate is limited to 1.0 percent. These rates seem to be based on 27 and 37.5 years respectively rather than the 15 years of the flat benefit excess plans. If the average annual compensation is based on four or three years, the benefit rate must be reduced by 5 or 10 percent respectively.[11]

STEP-RATE EXCESS PLANS

An employer who wishes to supplement SS payments for all workers, low- and high-paid, and still correct some of the act's inequities with respect to higher-paid workers, may develop a plan to fill this need. It may be used in conjunction with flat benefit or unit benefit plans. The IRS evaluates that type as what it actually is, two plans: one for all workers at a uniform rate and another for the higher-paid workers, and refers to it as a step-rate excess plan.[12] Step-rate excess plans are used far more widely than are pure excess plans.

The step-rate excess plan integration level is the same as those discussed above. The benefit rate (integration percentage) for an integrated step-rate excess plan for those employees earning above the integration level cannot exceed the stated integration percentage for the type of plan (flat or unit benefit) being considered plus the uniform benefit rate applicable to all workers. For example, in a flat benefit plan, an integration percentage of 57.5 percent is possible if the uniform benefit to all workers below the integration level is 20 percent. The difference between the two (37.5 percent) meets the integration percentage requirement for a flat benefit excess plan.

Likewise, with a unit benefit step-rate excess plan, the differential integration percentage cannot exceed 1.0 or 1.4 percent depending on the range over which the benefits are averaged. Therefore, a unit benefit plan using career average compensation may accrue 1.0 percent to all workers below the integration level and 2.4 percent to those workers earning above the integration level.

INTEGRATION METHODS IN USE

In a 1978 study done for the Treasury Department, A.S. Hansen, Inc. surveyed 1,200 private pension plans, both large and small but with a high proportion of large plans in the sample.[13] The study revealed that a total of 68 percent of all 1,200 plans were integrated with SS benefits. Smaller plans (25 or fewer participants) were 84 percent integrated, and larger plans (more than 25 participants) were 62 percent integrated. Of the integrated smaller plans, 84 percent were integrated using the offset method while only 3 percent were integrated using the pure excess method. Of the integrated larger plans, 77 percent were integrated using the offset method and only 1 percent were integrated using the pure excess method. The remainder of both smaller and larger integrated plans were integrated using the step-rate method. (See Table 2).

The A.S. Hansen, Inc., study found the most popular integration method to be the offset method. A study by Bankers Trust Company in 1980, however, revealed that when large corporate defined-benefit pension plans are integrated, the integration method differed with the method of determined benefit formulas.[14] Those plans using career average formulas to determine benefits overwhelmingly chose the step-rate method of integration, while the plans using final pay formulas to determine benefits chose the offset method in about the same proportion. (See Table 3).

DEFINED CONTRIBUTION PLANS

Prior to 1984 plan years, defined contribution plans were integrated using the same integration levels as the unit benefit excess plans. The contribution percentage was limited to 7 percent if based on actual

TABLE 2
Extent of Integration and Types of Integration Among Private Pension Plans*

	All plans	Plans With 25 or Fewer Participants	Plans With 26 or More Participants
Nonintegrated	32%	16%	38%
Integrated	68%	84%	62%
	Types of Integration		
	Pure Excess	3%	1%
	Step-Rate	13%	22%
	Offset	84%	77%

*This sample has a high proportion of large plans.
Source: President's Commission On Pension Policy, *An Interim Report*, U.S. Government Printing Office, 1980.

TABLE 3
Extent of Integration Among 200 Large Corporate Defined Benefit Plans.
(Not Collectively Bargained)

Integration Method Used	1965-70 Results	1970-75 Results	1975-80 Results
Final Pay Formulas:			
Offset	50%	52%	66%
Step-Rate	38	34	23
Excess	1	1	0
Nonintegrated	11	13	11
	100%	100%	100%
Career Average Formulas:			
Offset	3%	3%	14%
Step-Rate	85	81	56
Excess	3	3	7
Nonintegrated	9	13	23
	100%	100%	100%

Source: President's Commission On Pension Policy, *An Interim Report*, U.S. Government Printing Office, 1980, p. 39.

present salary or a 7 percent differential if a step-rate integration plan was used. For past service the limit was 7 percent if based on actual salary and 5 percent if based on average annual compensation. It was also possible to determine a given dollar amount per year of past service, in which case the rules for the unit benefit excess plan were used.

For plan years beginning after December 31, 1983, a money purchase plan is integrated with SS by reducing the contribution to each employee by an amount equal to no more than the employer's portion of the Old-Age, Survivors and Disability Insurance (OASDI) tax (5.7 percent; this excludes Hospitalization Insurance Tax).[15] If the requirement rules were in effect in 1983, the employer's OASDI tax rate of 5.7 percent on a maximum of $35,700 results in a maximum of $2,034.90 per employee. Under the new rules a plan sponsor may contribute 5.7 percent of all wages in excess of $35,700 to a money-purchase pension plan. Consider two employees X and Y working for the same employer with a qualified, integrated money-purchase plan. If X has total wages of $30,000 and Y has total wages of $60,000, the employer is not required to make a contribution for X but may make a contribution for Y in the amount of $1,385.10 [($60,000 − $35,700) × 0.057].

As in other forms, the money purchase plan may have a step-rate integration. For example if an integrated money purchase plan provides for a maximum 10 percent contribution, employee X would receive $1,290 [$30,000 × (.10 − 0.057)] while employee Y would receive $3,965.10 [35,700 × (.10 − .057)] + [(60,000 − 35,700) × .10]—.

DEFERRED PROFIT SHARING PLAN

A Deferred Profit Sharing Plan, increasingly popular with smaller employers, is similar to a pension plan. As with pension plans, it must, be operated exclusively for the benefit of employees and their beneficiaries and must not discriminate in favor of a few highly paid employees. This type plan is integrated using the same rules as a money purchase excess plan.

The amount to be allocated depends, of course, upon the contract. Under an integrated plan for years after 1983, one or two allocations may be made. A single allocation must be no more than the employer's OASDI tax contribution on amounts in excess of the SS wage base. For two allocations, the first is made to those employees with wages in excess of the SS wage base to the limit of the employer's OASDI tax contribution; the second allocates the remainder to individuals in proportion to the total compensation for the period. If there is only sufficient profit for the first allocation, it is a pure excess plan. With two allocations, the result is a step-formula.

ANNUITIES

The integration percentages discussed are predicated on pension benefits paid in the form of a straight-life annuity. A straight-life annuity pays life-long benefits stopping at the point of death. If the recipient is married the surviving spouse receives nothing. A pension plan paying benefits in some form other than straight-life annuity requires a reduced integration percentage. For example, with a typical "joint and survivor" annuity, the worker's spouse will continue to receive one-half of the pension if the worker dies first. In this case, the integration percentage must be reduced to 80 percent of its original value. Another example is a life-time annuity with guarantee of a certain number of payments. If the recipient dies before those payments are completed, the remainder is paid to the recipient's estate. A straight-life annuity and the multipliers for each.

CONCLUSIONS

To alleviate the retirement problems of higher-paid workers, an employer may want to provide a pension plan. However, if adequate compensation replacement ratios are provided for the higher-paid workers, the lower-paid workers may receive pensions in excess of 100 percent replacement. To compensate for this bias favoring the lower-paid worker, the IRS has designed regulations to allow for employers to "integrate" their pension plans with SS benefits such that all retirees may receive substantially the same replacement ratios.

This paper has discussed the integration procedures for defined contribution and defined benefit pension plans. With judicious planning and foresight, the employer may integrate a pension plan with SS benefits to ensure that all retirees receive approximately the same wage replacement ratio.

TABLE 4
Straight-life Annuity Multipliers

Form of Retirement Benefit:	Percentage
Annuity for 5 years certain and life thereafter	97
Annuity for 10 years certain and life thereafter	90
Annuity for 15 years certain and life thereafter	80
Annuity for 20 years certain and life thereafter	70
Life annuity with installment refund	90
Life annuity with cash refund	85
Life annuity with one-half continued to surviving spouse	80

Source: Rev. Rul. 71-446, Sec. 9.

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[1] William C. Letzkus, "An Introduction to Social Security Benefit Computations," *Arkansas Business and Economic Review*, Vol. 16, No. 1, p. 21.

[2] See for example Revenue Ruling 71-446 as modified by various other Revenue Rulings in the past twelve years.

[3] Rev. Rul. 71-446, Sec. 2.07.

[4] Dan M. McGill, *Fundamentals of Private Pensions*, 4th ed., Richard D. Irwin, Inc., (Homewood, Ill.: 1979), p. 171.

[5] Ibid., p. 181.

[6] Ibid., p. 181-82.

[7] Ibid., p. 185.

[8] Rev. Rul. 71-446, Sec. 2.03.

[9] Ibid., Sec. 5.012.

[10] McGill, op. cit., p. 188.

[11] *CCH Pension Plan Guide*, par. 2626, p. 4405.

[12] Rev. Rul. 71-446, Sec. 16.

[13] President's Commission On Pension Policy, *An Interim Report*, U.S. Government Printing Office, 1980, p. 39-40.

[14] Ibid., p. 39.

[15] IRC Sec. 401 (l)(1).

REGIONAL UNEMPLOYMENT: A COMPARISON OF ARKANSAS TO THE NATION

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INTRODUCTION

Unemployment is a perennial problem facing every state in the nation and so it is surprising that so little empirical research has been conducted on unemployment at the state level. That which has been done is generally cross-sectional rather than an analysis of a single state. In fact, in Arkansas' case there have been no published studies of its unemployment. In part, this bias is the result of the fact that most economists' interest in unemployment has been at the macro level in terms of aggregate variables such as inflation and money growth, things which do not vary significantly between regions. There is also the belief that labor markets are effective at allocating labor between regions and that regions respond similarly to the aggregate variables.[2]

While this approach may be satisfactory when viewing the nation in the aggregate, it is seriously deficient when trying to understand the economy of a particular state or region. Hofler and Murphy have shown that not only do variables which vary regionally (such as educational attainment, relative wages, etc.) explain regional differences in unemployment but they also demonstrated that there are regional differences in the response to changes in the levels of these variables.[3] It is therefore necessary not only to measure the levels of various social and economic conditions on a regional basis but also the size of the response to changes in these levels.

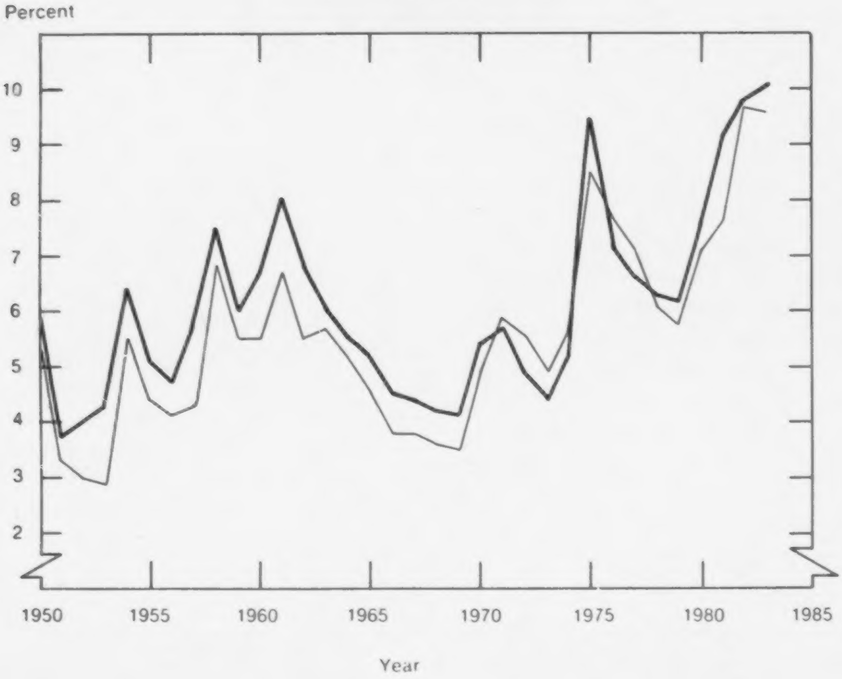
States have considerable leeway in devising their own programs to assist the unemployed and reduce employment. These include not only the level of payments to unemployed workers, but also the method of financing the unemployment system, e.g., Topel found that "incomplete experience rating may account for as much as 30 percent of all spells of temporary layoff unemployment."[4] There is therefore a practical need for analysis of unemployment at the state level.

The plan of this paper is to set forth several stylized facts of Arkansas' unemployment as compared to the nation. The rate is usually higher in Arkansas and the gap becomes wider during recessions. The study then interprets previous empirical research on regional differences in unemployment as it applies to Arkansas and presents some new results. Finally, conclusions are drawn which generally point to a deficiency in our understanding of why regional unemployment rates differ and outlines areas requiring additional research.

THE STYLIZED FACTS OF UNEMPLOYMENT IN ARKANSAS

Figure 1 shows the unemployment rate for Arkansas and the United States annually since 1950. There are two salient features worth mentioning. The first is that, except for a few years in the 1970's, the Arkansas unemployment rate is consistently higher than the United States rate. The second is that the gap between their unemployment rates becomes much larger during recessions. On average Arkansas' unemployment rate is 0.6 percentage points higher,[5] but during recessions it is more than 1 point higher.

FIGURE 1
Unemployment Rate
Arkansas (—)and United States (—),
1950-1983



The composition of Arkansas' unemployed also differs substantially from the nation's. For instance, in 1982 more than 40 percent of the unemployed in Arkansas were new entrants to the labor force or reentering the labor force after a period of nonparticipation. This compares to only 33 percent for the United States. Conversely, a larger percentage of the unemployed in the United States are job losers.

Another important difference is in the duration of unemployment spells. These spells are much shorter in Arkansas than for the United States. For example, 75 percent of Arkansas' unemployed were unemployed for 14 weeks or less compared to 67 percent for the United States. Only 10 percent of the unemployed in Arkansas were without a job 27 weeks or more. This compares to 17 percent for the nation.

ANALYSIS

Earlier in this paper, the major studies which have tried to account for regional differences in unemployment are examined and their results are applied to Arkansas. It is found that they provide an inadequate explanation for Arkansas' experience. Below, new results are reported based on using two different techniques to explain regional differences in unemployment. The first decomposes Arkansas' unemployment rate into that due to regional and compositional aspects and the other uses a monetarist unemployment model. The former shows that most of Arkansas' higher unemployment rate is due to the occupational composition of its labor force and the latter shows that monetary policy has twice the impact on Arkansas' unemployment that it has on United States unemployment.

Previous Work

Browne studied differences in regional unemployment rates and found that six variables were important in accounting for these differences:[6]

1. Per capita wages and salaries,
2. Growth of manufacturing capital,
3. Population age 20 and over,
4. Proportion of employment in agriculture,
5. Racial composition, and
6. Sensitivity of the industrial mix to the business cycle.

Browne worked with annual data for census regions and divisions. Unfortunately, identical data is not available for states except during census years. Table 1 presents the relevant data for Arkansas and the United States for 1960, 1970, and 1980. The data indicate that Arkansas is becoming more like the United States over time especially with regard to wages and salaries, capital investment and racial composition. On the other hand, Arkansas is diverging from the United States in terms of the proportion of employment in agriculture. No pattern is discernible for the cyclical sensitivity and age variables—Arkansas and the United States have had essentially the same proportion of people age 20 and over since 1960.

In the table, a ratio of less than unity indicates that Arkansas is at a lower level than the United States. Thus, wages are lower in Arkansas and Arkansas has a smaller proportion of whites than the United States. On the other hand, capital investment per manufacturing worker is greater in Arkansas and so is the proportion of workers in agriculture. Arkansas is also slightly more cyclically sensitive than the nation.

Browne found that both wages and the age of the population had positive effects on the unemployment rate and that capital investment, agricultural employment, racial composition and cyclical sensitivity had negative effects. These effects are summarized in column 4, Table 1.

Her findings are intuitively plausible, higher wages make labor relatively unattractive to firms which in turn tend to raise unemployment; a larger population of working age, all else equal, means a higher unemployment rate; whites historically have lower unemployment rates than nonwhites; and unemployment in farming is generally low because of the high amount of self-employment and family workers which lead to low labor turnover and underemployment. Capital investment decreases the unemployment rate by increasing the marginal productivity of workers. Finally, the composition of the industry affects the unemployment rate.[7] If it is more heavily weighted toward cyclically sensitive industries, fluctuations in the unemployment rate over the business cycle will be more pronounced than otherwise.

In order to explain the difference in the unemployment rates of Arkansas and the nation, it is necessary to consider the two influences of each of the variables in the table. The first influence (as discussed earlier) is the effect of the variable on the unemployment rate. The second is the level of that variable in Arkansas relative to the nation as represented by the ratios in Table 1. If that ratio is negative, then the variable in question has a negative influence on Arkansas relative to the nation. The net effect of these two influences is indicated in the last column of the table. For instance, Browne demonstrated that wages had a positive effect on unemployment but Arkansas has lower wages than the United States. Therefore Arkansas' unemployment rate should be lower than the United States rate. Similarly, capital investment, agricultural employment, and the cyclical sensitivity of Arkansas' industrial composition all tend to lower its unemployment rate relative to the United

TABLE 1
Factors Influencing Employment Rates
Arkansas & the United States

	1960	1970	1980	Effect on Unemployment Rate	Effect on Arkansas' Unemployment Rate Relative to the U.S.
Wage & Salary Disbursements-Per Capita (thousand $)					
Arkansas	3,062	5,875	12,467		
United States	4,508	7,295	14,135	raise	lower
Ratio, Arkansas to United States	.679	.805	.882		
Investment in manufacturing-Per Capita (dollars)					
Arkansas	688	1,250	NA		
United States	589	1,144		lower	lower
Ratio, Arkansas to United States	1.168	1.093	NA		
Population age 20 and over (% of total)					
Arkansas	59.6	62.4	66.9		
United States	61.5	62.2	68.0	raise	lower
Ratio, Arkansas to United States	.969	1.003	.984		
Employment in Agriculture (% of total)					
Arkansas	16.1	8.9	7.1		
United States	8.3	4.4	3.4	lower	lower
Ratio, Arkansas to United States	1.940	2.023	2.088		
Racial Composition (% white)					
Arkansas	78.1	81.4	82.7		
United States	88.6	87.5	83.1	lower	raise
Ratio, Arkansas to United States	.881	.930	.995		
Cyclical Sensitivity					
Arkansas	1.062	1.012	1.036		
United States	1.034	1.004	1.019	lower	lower
Ratio, Arkansas to United States	1.027	1.007	1.017		

NA - Not Available

Data Sources: Arkansas Department of Labor, United States Bureau of the Census, and United States Department of Labor.

States. Only its racial composition tends to raise its unemployment rate. These findings would suggest that Arkansas should have a **lower** unemployment rate than the United States. Since this is not the case we are left with an inadequate explanation of why the rates differ.

Hofler and Murphy also considered regional unemployment rates.[8] They criticized Browne's results primarily because she did not allow for regional differences in the size and sign of the response of unemployment to the explanatory variables. They note that:

> "None of the explanatory variables in the unemployment equation can be signed since these variables affect employment and the various components of unemployment in different ways." (p. 218)

In their work they omitted some of the variables Browne used and added some new ones: educational attainment and various components of personal income.[9] They found considerable geographic differences in the unemployment equations including such things as a positive wage response in some states and a negative response in others. Their work confirms the need for state-specific analysis of unemployment notes rather than the cross-sectional analysis used by Browne. The next section will provide some results for Arkansas using different techniques than those used by Browne, Hofler and Murphy.

Some New Results

Given the inadequacy of the existing literature in explaining why Arkansas' unemployment is higher than the United States, two new approaches were tried. The first is a decomposition of unemployment into regional and compositional causes and the second is a monetarist unemployment equation.

Decomposition of Unemployment. As was shown in Figure 1, Arkansas traditionally has had a higher unemployment rate than the United States. An important question is to what extent these differences are explicable by state differences in industrial and occupational structure or by other regional differences. For instance, two states with an identical industrial composition could have different unemployment rates if an industry in one state is in decline but is expanding in another state. (Here industrial composition is being defined as the composition of the experienced civilian labor force by industry of affiliation). An example would be the movement of the textile industry from the Northeast to the South. On the other hand, two states may be experiencing entirely identical industrial growth rates but have different unemployment rates if their industrial compositions differ. If each industry is affected by economic disturbances of varying degrees, then the state unemployment rates will differ.

It is important to distinguish between these two sources of unemployment because the policies designed to reduce unemployment will be different, depending on which source is dominant. Further, knowledge of their relative contribution to the unemployment rate will enable one to quantify the potential effect of various policies designed to reduce the unemployment rate. The aim of this section is to decompose Arkansas' unemployment rate into that attributable to its having a different occupational and industrial composition than the United States and that attributable to other regional differences. The decomposition of the unemployment rate is accomplished using a technique originally developed to account for the effect of changes in demographics on the unemployment rate.[10]

The unemployment rate in Arkansas will differ from the national rate when unemployment rates by industry differ for the two places, the proportion (or weight) of the labor force in each industry differs or a combination of the two.[11] The difference in unemployment when rates are held constant for Arkansas and the United States is the composition effect, i.e. that due to different proportions of employment in each industry. The difference when labor force composition is held constant is the regional effect, i.e. that due to different industry unemployment rates. The interaction effect picks up the effects of unemployment rates on composition and vice versa. For instance, a high unemployment rate in a particular occupation may lead to some of those workers becoming discouraged and consequently withdrawing from the labor force, reducing the weight of that occupation. Alternatively, the small weight of an occupation means limited job opportunities making it difficult for those who are unemployed to find a position quickly.

Table 2 presents occupational and industrial unemployment rates and weights for Arkansas and the United States for 1980. Although the unemployment rates are very similar, the weights are quite different. Arkansas has a much smaller proportion of workers in the Professional Specialty and Administrative Support categories and a larger proportion in Farming and Machine Operators. Note that the first two categories have relatively low unemployment rates and the latter two have relatively large rates. Thus at first glance it appears that Arkansas has a larger proportion of its labor force in occupations with high unemployment rates. This will be confirmed below using a more rigorous procedure.

In 1970 although there were also large differences (between Arkansas and the nation) in the composition of the labor force (as shown in the "weight" columns of Table 3) there were also large differences in the industrial and occupational unemployment rates. Most occupations and industries in 1970 had an unemployment rate that was at least a full percentage point higher in Arkansas than in the United States. (In 1980 this was the case only for the farming occupation and the entertainment industry). Unemployment rates by industry are likewise similar in Arkansas and the United States but Arkansas has a larger manufacturing and agriculture weight than the United States.

Table 4 presents the results of a formal procedure to explain differences in unemployment. It decomposes the Arkansas-United States unemployment rate difference into regional, compositional and interactional components. The regional component indicates how much of the difference is due to different occupation and industry unemployment rates. The compositional component indicates how much is due to different employment compositions (by occupation and industry). The interactional component is the rest.

The results are presented for both occupations and industries and for two different census years. (The breakdown of unemployment by industry and occupation in this detail for states is available only in the population censuses). The same qualitative results are obtained whether one makes the unemployment decomposition by industry or occupation.

The breakdown indicates that in 1980 most of the differences in unemployment between Arkansas and the United States were due to the composition of the labor force and very little was due to different economic conditions. Just the opposite conclusion held in 1970 when the reason for the differences in unemployment appears to have been due mostly (70-80%) to worse economic conditions in Arkansas than in the United States and only a little (20-30%) due to differences in employment composition. In all cases the interaction effect is quite small. This is fortunate since it is a combination of the other two effects

TABLE 2
Unemployment Rates and Weights
March 1980
(percent)

	Unemployment Rate (u_i)		Weight (w_i)	
	Ark	U.S.	Ark	U.S.
Occupations				
1. Managerial excl. mgmt. related	2.0	2.4	6.1	7.4
2. Management related	1.7	2.3	1.8	2.5
3. Professional specialty	1.8	2.1	9.2	11.8
4. Technicians and related support	2.7	2.6	2.3	2.9
5. Sales	4.5	4.8	9.5	9.8
6. Administrative support, incl. clerical	3.9	4.1	13.3	16.8
7. Private household	6.5	6.0	0.7	0.6
8. Protective service	5.0	4.3	1.1	1.5
9. Service other than priv. hsehld. and protective service	8.2	7.6	10.5	10.9
10. Farming, forestry and fishing	6.3	7.3	6.1	2.9
11. Mechanics and repairers	4.8	4.6	4.4	3.8
12. Construction	12.3	11.8	5.3	4.6
13. Extractive	7.1	6.7	0.2	0.3
14. Precision production	4.6	4.2	4.3	4.3
15. Machine operators, assemblers and inspectors	9.3	9.9	12.4	9.7
16. Transportation and material moving	8.9	8.9	6.2	4.6
17. Handlers, equipment cleaners, helpers, laborers	13.0	13.8	5.9	4.9
18. Not classified	100.0	100.0	0.3	0.3
19. No previous work experience	100.0	100.0	0.4	0.4
Industries				
1. Agriculture, forestry and fisheries	5.8	6.5	6.0	3.0
2. Mining	6.0	5.7	0.7	1.0
3. Construction	14.7	13.9	7.6	6.4
4. Manufacturing	7.5	6.9	25.3	22.5
5. Transportation, communications and other public utilities	4.9	4.3	6.9	7.1
6. Wholesale trade	4.0	4.6	4.0	4.2
7. Retail trade	6.5	6.9	15.6	16.2
8. Finance, insurance & real estate	2.1	2.8	4.0	5.8
9. Business and repair services	5.5	6.3	3.1	4.2
10. Personal services	6.6	6.5	3.2	3.1
11. Entertainment and recreation svcs.	10.7	9.7	0.7	1.1
12. Professional and related services	3.2	2.9	18.3	19.5
13. Public administration	4.7	4.0	3.9	5.1
14. Not classified	100.0	100.0	0.3	0.3
15. No previous work experience	100.0	100.0	0.4	0.4

Source: 1980 Census of Population

TABLE 3
Unemployment Rates and Weights
March 1970
(percent)

	Unemployment Rate (u_i)		Weight (w_i)	
	Ark	U.S.	Ark	U.S.
Occupations				
1. Managerial excl. mgmt. related	1.3	1.4	4.9	5.3
2. Management related	1.9	1.5	1.5	2.1
3. Professional specialty	1.5	1.7	8.3	11.0
4. Technicians and related support	2.5	2.4	1.5	2.3
5. Sales	2.8	3.1	9.8	10.0
6. Administrative support, incl. clerical	3.5	3.1	11.8	16.5
7. Private household	6.5	4.9	2.5	1.5
8. Protective service	3.4	2.0	0.9	1.3
9. Service other than priv. hsehld. and protective service	5.8	5.0	9.5	9.9
10. Farming, forestry and fishing	6.3	4.2	8.5	3.8
11. Mechanics and repairers	3.5	2.5	4.2	4.1
12. Construction	8.4	6.6	4.9	4.5
13. Extractive	6.1	4.9	0.2	0.2
14. Precision production	4.7	3.3	5.0	5.2
15. Machine operators, assemblers and inspectors	8.1	6.3	13.3	11.2
16. Transportation and material moving	6.0	4.9	6.1	4.9
17. Handlers, equipment cleaners, helpers, laborers	9.9	8.1	6.6	5.6
18. Not classified	100.0	100.0	0.1	0.1
19. No previous work experience	100.0	100.0	0.4	0.3
Industries				
1. Agriculture, forestry and fisheries	6.4	3.9	8.5	3.7
2. Mining	5.1	3.7	0.8	0.8
3. Construction	10.7	8.0	7.2	6.2
4. Manufacturing	6.5	4.7	26.4	26.1
5. Transportation, communications and other public utilities	3.4	2.7	7.1	7.6
6. Wholesale trade	3.0	3.0	4.0	4.4
7. Retail trade	4.7	4.5	15.2	15.7
8. Finance, insurance & real estate	2.5	2.1	3.3	4.9
9. Business and repair services	3.6	1.2	2.4	3.3
10. Personal services	5.6	4.7	5.8	4.5
11. Entertainment and recreation svcs.	7.1	8.4	0.6	0.9
12. Professional and related services	2.3	2.1	15.3	17.0
13. Public administration	2.8	2.0	3.0	4.6
14. Not classified	100.0	100.0	0.1	0.1
15. No previous work experience	100.0	100.0	0.4	0.3

Source: 1970 Census of Population

TABLE 4
Decomposition of Unemployment Rate Differences, Arkansas-United States, 1970-1980
Percent

		Regional	Compositional	Interactional
Occupations	1970	59	28	13
	1980	−31	139	−8
Industries	1970	72	17	12
	1980	39	58	3

Based on aggregate 1980 unemployment rates of 6.9% for Arkansas and 6.5% for the U.S. and 1970 rates of 5.7% and 4.4% respectively.

and it is not possible to separate their relative contribution.

Monetarist Unemployment Equation. A second question of interest (in addition to why regions differ) is whether the response of different regions to federal policies differ. This section evaluates how unemployment rates in Arkansas (as compared to the United States) respond to changes in the growth of the money supply. It is found that Arkansas' unemployment is twice as sensitive.

As a starting point for the analysis, a monetarist model[12] of unemployment, modified as suggested by Lilien, was estimated.[13] Briefly, this model says that unemployment in the short run is, in part, a monetary phenomena and that there are two paths of causation from money to unemployment. The first and quickest is a decrease in unemployment when money growth accelerates. After a lag the money growth accelerates inflation which reduces real balances and raises unemployment.[14]

The Lilien modification builds on this monetarist framework by noting that shifts in employment demand between sectors of the economy in conjunction with lags in the adjustment of the labor force to these shifts also contributes to unemployment. These shifts can be proxied by changes in the employment growth rates of the different sectors of the economy. Large shifts such as those which occur with the end of wars and oil price shocks are associated with an increase in the dispersion of employment growth rates.

Lilien considered just the dispersion of employment growth rates by industry. However, the recent past indicates that there have been marked shifts in employment demand by region of the country — and even within regions of the state of Arkansas. It is no secret that various Northern states have been stagnating compared to the South nor that the Northwest and Central regions of Arkansas are growing at the expense of the East and Southeast regions.

The results from estimating such an unemployment model are presented in Table 5. The results are presented as elasticities which is an economist's way of succinctly expressing the effect of a 1 percent change in one variable on another. Thus for Arkansas the table indicates that the inflation-adjusted growth in the money supply has an elasticity of −.012. This means that a 1 percent increase in the growth rate of the real money supply will lead to a .012 percent decrease in the unemployment rate the following year. A 1 percent increase in the dispersion[15] of regional employment growth rates (region is here defined as Planning and Development District) causes a .16 percent decrease in the unemployment rate. Similarly, a 1 percent increase in the dispersion of industrial em-

TABLE 5
Unemployment Rate Elasticities

	Arkansas	United States
Real Money Supply Growth Rate	−.012	−.005
Dispersion of Industrial Employment Growth Rates	.28	.21
Dispersion of Regional Employment Growth Rate	−.16	.14

Source: David Lenze, "Regional Labor Demand Shifts and Unemployment: More Evidence on the Dispersion Hypothesis," unpublished, 1984.

ployment growth leads to a .28 percent increase in the unemployment rate.

These elasticities may appear small but their importance can be judged by considering how much money growth and employment dispersion fluctuated in the last recession. In 1981 the real money supply growth rate decreased 3 percent (compared to an average growth rate of 5 percent from 1960-1982). This raised the 1982 unemployment rate in Arkansas by 0.6 percentage points (and the U.S. rate 0.3 points). In 1982 the dispersion in regional employment growth rates was 19 percent higher than the previous year which added 0.2 points to the unemployment rate in Arkansas.

One important result to highlight in Table 5 is that the effect of real money growth rates is twice as large for Arkansas as it is for the United States. This means that when the Federal Reserve embarks on a policy of expanded money growth, the unemployment rate will fall to a larger extent in Arkansas than in the country as a whole.

CONCLUSIONS

There are two important conclusions from this analysis. The first is that there are substantial differences in the unemployment experienced by different regions and the second is that the existing empirical literature is incapable of adequately explaining these regional differences.

The analysis here attributed Arkansas' higher unemployment rate to specialization in cyclically sensitive industries and occupations and demonstrated that Arkansas is twice as sensitive to cyclical fluctuations in real money supply growth rates. These results are important because monetary policy is a frequently used policy at the federal level to control inflation and unemployment and there is little awareness within the state about how such policies have more differential impact in Arkansas than on the nation as a whole.

The dearth of Arkansas-specific research needs to be remedied with further research on subjects such as whether fiscal policies (as well as the monetary policy studied here) have a differential impact on Arkansas.

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[1] The author thanks Lawrence Okere for able research assistance, Richard Ford and Forrest Pollard for useful discussions and Noreen Bailey for typing.

[2] Lowell E. Gallaway, "Labor Mobility, Resource Allocation, and Structural Unemployment," *American Economic Review* 53, (1963): pp. 694-716; Steven M. Sheffrin, "The Dispersion Hypothesis in Macroeconomics," *Review of Economics and Statistics* 66, (1984): pp. 482-485; and Andrew M. Sum and Thomas P. Rush, "The Geographic Structure of Unemployment Rates," *Monthly Labor Review* 98, (March, 1975): pp. 3-9.

[3] Richard A. Hofler and Kevin J. Murphy, "Determinants of Geographic Unemployment Rates: A Selectively Pooled-Simultaneous Model," *Review of Economics and Statistics* 66, (1984): pp. 216-223.

[4] Robert H. Topel, "Layoffs and Unemployment Insurance," *American Economic Review* 83, (1983): pp. 541-559.

[5] Excluding 1971-77.

[6] Lynn E. Browne, "Regional Unemployment Rates—Why are They so Different?," *New England Economic Review* 53, (July/August, 1978).

[7] Ibid. Browne defines the index of cyclical sensitivity (C) for the United States as:

$$C_t = I_t/I^*_t$$

where I indicates how employment would have changed if the industrial composition were always that which prevailed in some base year. The value of I for a state depends upon its base year industrial composition and national employment growth rates. This means that the only difference between I for the U.S. and for a state is the base year industrial composition of the two. I^* is a measure of the trend in I. Deviations of I from trend are taken as a measure of the effect of the business cycle on employment. Thus $C > 1$ during expansions and $C < 1$ during recessions. The relative sensitivity of Arkansas, therefore, is a ratio of C calculated for Arkansas to C calculated for the nation. In this case if the ratio is greater than unity then Arkansas is more sensitive to the cycle than the U.S.—i.e., its employment grows faster during expansions and falls faster during recessions.

[8] Richard A. Hofler and Kevin J. Murphy, pp. 216-223.

[9] Ibid. The variables they used were:

a. wages in the state relative to the nation
b. transfer payments
c. property income
d. proportion of working age population which is non-white
e. proportion of those age 24 and over with a high school diploma
f. proportion of working-age population age 16-19
g. personal income
h. ratio of actual to potential income for the United States

[10] See Antos, Mellow and Triplett for a discussion of this technique and a survey of studies applying it to demographics.

[11] Formally,

$$(1)\ u^a = u^b + \sum_i (w^b_i \Delta u_i + u^b_i \Delta w_i + \Delta u_i \Delta w_i)$$

where u^a and u^b are the overall unemployment rates in the state and in the nation, w_i is the proportion of employment in industry (occupation) i, u_i is the unemployment rate in industry (occupation) i, and Δ is the difference operator $(a - b)$.

[12] Rea provides evidence that the monetarist specification out performs other specifications, including a Phillips-curve trade off, in the recent past.

[13] David M. Lilien, "Sectoral Shifts and Cyclical Unemployment," *Journal of Political Economy* 90, (1982): pp. 777-793.

[14] Since the primary focus of the present study is on the relationship of the dispersion in unemployment growth to unemployment, only a simple one-period lag in money growth and inflation growth issued.

[15] The dispersion was calculated with the following formula:

$$\sigma_t = \left[\sum_{i=1}^{n} (e_{it}/E_t)(\Delta \ln e_{it} - \Delta \ln E_t)^2\right]^{1/2}$$

where t indexes time and i indexes 9 industries or 8 Planning and Development Districts.

AGRICULTURE AND THE SEASONALITY OF THE CIVILIAN LABOR FORCE AND EMPLOYMENT IN ARKANSAS

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INTRODUCTION AND METHODOLOGY

The economy of Arkansas is frequently characterized as agriculturally based. While one may disagree with this characterization, it is undeniably correct to say that agriculture plays a significant role in the state's economy. With this significance in mind, it would appear worthwhile to examine the degree of seasonality of employment in agriculture and its relationship to seasonality in the labor force, in the number of unemployed, and in total employment.

The X11 procedure, developed by the Bureau of the Census, U.S. Department of Commerce, was selected to develop the seasonal indices used in this analysis. Using this procedure and fifteen years of monthly data, separate 1970 and 1984 monthly seasonal indices were determined for the labor force, unemployment, total employment, agricultural employment, and all nonagricultural employment. (See Tables 1 and 2).

TABLE 1
Labor Force, Employment and Unemployment
Seasonal Indices
1970

Month	Labor Force	Unemployment	Employment	Agricultural	Nonagricultural Employment
Jan.	95.6	120.3	94.2	60.7	97.5
Feb.	97.0	117.2	95.1	76.0	97.9
March	99.1	109.8	98.5	95.3	99.0
April	99.9	97.9	100.0	105.7	99.5
May	101.3	88.2	102.1	120.2	100.4
June	102.9	104.0	102.8	114.3	101.7
July	103.4	98.6	103.6	118.6	102.1
August	102.9	89.0	103.7	121.7	101.9
Sep.	101.3	86.0	102.2	118.7	100.6
Oct.	101.5	89.7	102.2	120.2	100.5
Nov.	98.9	95.7	99.0	92.9	99.5
Dec.	95.9	102.9	95.6	55.6	99.2

TABLE 2
Labor Force, Employment and Unemployment Seasonal Indices
1984

Month	Labor Force	Unemployment	Employment	Agricultural	Nonagricultural Employment
Jan.	96.5	115.6	94.8	59.3	97.4
Feb.	98.0	114.2	96.2	72.5	98.0
March	99.3	108.1	98.4	92.2	98.9
April	100.0	100.3	100.0	99.7	100.1
May	101.5	98.2	101.9	119.9	100.6
June	101.6	100.2	101.2	115.2	100.2
July	100.8	98.5	101.1	118.8	99.8
August	101.0	93.4	101.9	121.3	100.4
Sep.	101.4	88.2	102.9	121.4	101.5
Oct.	102.1	91.2	103.3	124.1	101.8
Nov.	100.0	95.3	100.5	98.2	100.7
Dec.	97.5	96.5	97.5	57.1	100.4

ANALYSIS

Agricultural Employment

The 1984 monthly indices for agricultural employment vary 67 percentage points from the highest employment month (October) to the lowest (December). The seasonal pattern in agriculture shifted somewhat between 1970 and 1984 but in the latter year, the peak, or above average, months were May to October, inclusive. In the earlier period, the range from high to low was slightly less, the peak period began with April, and the month of greatest employment was August.

Nonagricultural Employment

As might be expected, nonagricultural employment contains little seasonal variation. The indices for 1984 ranged only 4.4 percentage points, with the months of January, February, March and July being below average.

Total Employment

Total employment has a seasonal pattern similar to that of nonagricultural employment, except the swing is larger (8.5 percentage points) and December, rather than July, is a below average month. It is apparent, then, that agriculture causes a slight shift in the seasonal pattern of total employment. Specifically, the variation in agricultural employment in 1984 was sufficient to cause total employment to have the same months as a seasonal trough and to have nearly double (in percentage points) the range of seasonality in nonagricultural employment in opposite directions since 1970, the seasonal patterns of both have shifted. Seasonality in agricultural employment became more extreme between 1970 and 1984, while it diminished in nonagricultural employment. The overall impact of these movements on total employment has been a reduction in seasonality.

Civilian Labor Force

In 1984, the civilian labor force had a seasonal range of 5.6 percentage points, with the same below average months as total employment. While the estimating methodology for this data series is somewhat responsible for this similarity, variations in agricultural employment may also contribute to the prevailing pattern.

Moving from January to December, the direction of the change in the civilian labor force is the same as the direction of change in agricultural employment for nine of the months. However, the same is true with respect to nonagricultural employment in ten of the months. Only between May and June does nonagricultural employment also decline over this same interval, the result is one of the peak (above average) months in the number of unemployed. Overall, then, these data offer no clear indication that changes in the size of the civilian labor force are primarily a function of changes in the level of agricultural employment.

Unemployment

In the aggregate, particularly when the seasonality of the number of unemployed is included, it is apparent that within a year there is a movement both into and away from the civilian labor force. On the one hand, December is an above average (by 0.4 percentage points) month for nonagricultural employment, the lowest month for agricultural employment, and a below average month for the number of unemployed. June, on the other hand, is above average in all categories. The interaction of the categories acts to produce rather large amounts of seasonality in the rate of unemployment. In a majority of instances, the direction of movement between months is the opposite for the civilian labor force and the number of unemployed. The percentage point range (in excess of 30) in the indices for the unemployment rate is greater than that of the civilian labor force, with January representing the peak and September the trough in the number of unemployed.

CONCLUSIONS

In summary, the indices developed by utilizing the X11 procedure reflect a high degree of seasonality in agricultural employment in Arkansas. However, the smaller size of agricultural employment, relative to nonagricultural employment, dampens the impact with regard to seasonality in total employment. Moveover, in a few months the seasonality in nonagricultural and agricultural employment offset one another so that the variation in total employment is reduced for at least those few months. The data appear to indicate movement into and out of the civilian labor force within the year, but the seasonal pattern is not totally consistent with what might be expected. Particularly, one might expect the labor force to rise during the June through August period (summer vacation for schools) and decline in September. However, the summer period, as well as September, is not substantially different from May and the peak month is October, well after school convenes. Also, the Christmas shopping season (November and December) is a period in which many firms employ temporary help and one might assume, consequently, the civilian labor force would increase. However, the index for November is average (100) and that for December is the second lowest of any month.

Overall, the seasonality in total employment and the civilian labor force is less than that of agricultural employment, and the former two do not appear to be a consistent function of the latter. Finally, the seasonality in agricultural employment may, in fact, counteract the seasonality in nonagricultural employment in some instances so that the seasonality in total employment is reduced.

THE COMPETITIVE EFFECTS OF IBM ON THE PERSONAL COMPUTER INDUSTRY IN A HIGH-TECH SOCIETY

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INTRODUCTION

During the prior decade, the personal computer has evolved from a market of kit builders to a highly competitive and expansionary world market.[1] It was not until 1981 that IBM initially entered the personal computer field. Yet, by 1984, this firm will account for an estimated 24 percent of the industry's sales. The IBM personal computer, along with IBM compatible computers, will constitute 60 percent of the $9.9 billion sales occurring in 1984. Furthermore, this personal computer (PC) will account for $1.2 billion of the $2.2 billion software sales.[2] The succeeding discussion will provide an analytical insight with respect to how this market dominance occurred and how it altered the personal computer industry in a high-tech society.

THE PERSONAL COMPUTER STANDARD

When the IBM PC was initially introduced in 1981, there was a shortfall in terms of the personal computer industry standard. Even though there were numerous computers on the market, most of them were excluded from program interchange due to incompatibility. Since a dominant manufacturer had not been established, many consumers did not participate in the market. The leading manufacturers were also using 8-bit microprocessors, which were considerably slower than the 16-bit microprocessors available at the time. Apple Computer, one of the leading manufacturers at the time, was producing a computer with a 40-column video display, a very poorly contrived word processing package, and no lower-case character set.[3] Various other computers did not provide suitable internal memory keyboards for touch typists.

The IBM PC entered the market with a 16-bit microprocessor, an Intel 8088, which could process data several times faster than an 8-bit microprocessor.[4] The IBM PC also had a standard 80-column display, a good quality keyboard, upper and lower case character sets, and what was considered at the time to be a large amount of internal memory. Consequently, the IBM PC filled the needs of a market segment.

In its genesis, the standardization of the industry was almost imperceptive in nature. Apple Computer went so far as to purchase a full page ad in the *Wall Street Journal* which welcomed IBM into the personal computer industry. Industry columnists were surprised at the number of IBM compatible systems displayed at the 1982 National Computer Conference.[5] Toward the end of 1982, it became apparent that an industry standard had been acquired as additional manufacturers produced similar systems. It is also interesting that in October of 1982, four Japanese manufacturers announced product support for the IBM personal computer standard.[6] Most of the application software was being written for the system with the largest market share, which was IBM; therefore, more hardware manufacturers rushed to make IBM PC compatible computers.

As more computer systems were manufactured, additional programs were being written for the IBM standard system. By early 1983, the IBM PC standard became synonymous with the industry standard. In mid-1983, the IBM 16-bit standard was so entrenched that it was recommended that the consumer purchase an 8-bit computer "only if you need to save money," and to "throw it away when you can upgrade."[7] This chicken-or-the-egg process of increasing hardware and software continues today, since it is estimated that over 70 percent of all personal computer systems sold to businesses during 1984 will be IBM PC compatible, and that as much as 75 percent of all new software will be written for IBM PC standard systems.[8] Due to the added stability of having IBM's market participation, and the emergence of an industry standard, consumer confidence increased dramatically. Because of the success of the IBM PC and the personal computer industry, some analysts are projecting that the industry will surpass the sales of mainframe computers by 1986.[9]

The consumer benefits from having an industry standard because the market is much more unified than before the IBM PC. It is much easier for the consumer to compare two similar systems produced by different manufacturers vis-a-vis two vastly different systems. Also, with the large amount of compatible peripheral devices (e.g., modems and printers), consumers are much more likely to find a product to fit their requirements at a reasonable price.

A constraint to an almost universally accepted standard is that some in the industry perceive that mimicry is stifling innovation. Joseph Schumpeter, of course, always recognized that there is innovation and subsequent imitation in production. Some might argue that the IBM PC is a mediocre performer. There are faster 32-bit machines available. Also, considering contemporary technology, the IBM PC seemingly experiences a shortfall with respect to keyboard layout, video displays, graphics capabilities, and limited internal addressable memory. "There are machines that are built as well, machines with better keyboards, and machines that run faster, but no other with those magic initials."[10] An important point: the IBM PC remains the industry leader! Therefore, many corporations will not assume the risks required to strive for the development of an innovative system. The marketing and R&D costs associated with developing such an innovative system are quite prohibitive. Due to the intense software industry competition to create machine-specific products, there is also a greater risk in successfully convincing software manufacturers to produce software for a new system.

PERSONAL COMPUTER SOFTWARE INDUSTRY

Because it was anxious to enter the personal computer industry in 1981, IBM inquired about purchasing an operating system from a software company instead of in-house development.[11] An operating system, of course, is the primary interpreter for an application program and the resident microprocessor. The IBM strategy was considered unusual for the company at that time. Why? Because previous mainframe computer systems had a "closed" architecture which contained proprietary software systems and therefore allowed IBM to retain its software market. But for the personal computer, IBM chose the "open" architecture PC-DOS operating system, developed by Microsoft, and then encouraged software development by outside authors.

Additional software companies began developing programs for the IBM PC as it became the industry standard. There was a minimal risk associated with software companies producing for the IBM PC provided that the software they produced would run on numerous compatible systems. Because with minor changes, the software would run on a majority of machines, the emergence of the IBM PC as the industry standard significantly consolidated the effort required to bring a major program to the personal computer market.

The market for personal computer software "is exploding like a supernova."[12] Consumers spent $1.2 billion on software in 1982; $2.3 billion on software in 1983; and by 1987 the software market is estimated to be $11 billion.[13] As the variety of available software has expanded with the growth in the industry, consumer benefits have become enormous. Even so, as the industry matures some firms will undoubtedly exit. Recent marketing tactics of some of the major software manufacturers resemble brand name retailing. As the marketing cost associated with the creation of brand awareness increases, so does the risk involved with the production of a new product. In addition, IBM has recently emerged as the number one software producer in the personal computer industry.[14] Furthermore, IBM could seemingly increase its software market share via development of a proprietory "closed" operating system for the IBM PC and thus induce a reduction in the amount of third party software.

IBM PC COMPATIBLES

The aforementioned advent of the IBM PC and its becoming the standard in the microcomputer industry induced many manufacturers to produce machines capable of running IBM designated software programs. These computer systems are commonly referred to as compatibles. Companies which initially produced IBM compatibles included Compaq Computer, Eagle Computer, Grid Systems, and Dynalogic. The program strategy of these smaller companies resulted in what might be termed a prosperous expansionary wave ahead of the entrance of the larger manufacturers' production of such compatibles. Given the shortage of IBM PCs in June of 1983, these small manufacturers assisted in closing an explicit excess in market demand.[15] Furthermore, the compatibles producers have the capability to extend their production to various peripheral items associated with the IBM PC.

The producers of IBM PC compatibles must, however, produce a superior product. Why? Their only alternative is to produce a computer at a significantly lower price in order to capture a market share. Given the nature of scale economies, with respect to IBM, their task is problematic by nature. It is estimated that discounts of 25 percent must be forthcoming in order to induce consumers to purchase compatibles instead of IBM units.[16] Numerous manufacturers may omit features in order to achieve a cost reduction. Even if costs are significantly reduced, penetration pricing has seemingly not historically countered the IBM market share. Why? Because IBM consistently reduces prices in response to any diminution in sales growth.[17]

The manufacturers of IBM compatibles could also perhaps experience a resource shortfall. This, of course, results from the supplier contractual relationship with IBM. As production of the IBM PC increases, a shortage becomes quite possible. This is particularly apparent in the production of 8088 central processing unit which, of course, is produced by Intel Corporation. It should perhaps be emphasized here that IBM presently owns over 15 percent of Intel.[18]

The reliance on a compatibility nature with the IBM computer also has a negative aspect associated with it. The IBM PC system has an "open" architecture which allows independent programmers to write specific software programs. But being "open" is also associated with the manufacturing of compatible systems. In order to circumvent identical clones of their PC, IBM has copyrighted the software, therefore the manufacturers of "compatible" computer systems cannot be "entirely" 100 percent compatible. Nevertheless, some manufacturers have seemingly become so nearly 100-percent IBM software "pure" that IBM has taken legal action. For example, Eagle Computer was charged recently with copying various aspects of IBM's software.[19] Even producing an operating compatible does not insure success, as TeleVideo discovered in September of 1984. For instance, the competition for shelf space and the costs of marketing their product produced less than expected earnings.[20]

An additional consideration that the manufacturers of IBM PC compatibles must address is the constant upgrading that IBM encourages in the standard operating system. Even though these changes are perceived as improvements in the standard operating system, they maintain compatible manufacturers as followers and not as technological entrepreneurs. A disappointing IBM strategy for the manufacturers of compatibles occurred when IBM made a recent technological upgrade with their Advanced Technology Personal Computer, or PC AT. Since the PC AT utilizes a more advanced microprocessor, it is two to three times faster than the PC. Just as important, the price was about one and one-half times the PC price. IBM has contracted for a large volume of the new processor which will obviously delay the entry of many compatible computers into the market. The profit pressure on the more antiquated compatible models is seemingly apparent.[21]

IBM COMPETITORS

Several manufacturers have filed for Chapter-11 bankruptcy or experienced severe losses from the competitive personal computer industry. Osborne Computer, Fortune Systems, Vector Graphic, Victor Technologies, Texas Instruments, and Warner Communications have apparently suffered via their entrance into this highly competitive market.[22] Every manufacturer is affected by IBM's entry into the personal computer industry. Even so, there are some who could seemingly challenge IBM as the market leader. Hewlett-Packard, Digital Equipment Company, Apple Computer, and AT&T are four major manufacturers which have the resources and/or the technology to affect IBM's position in the personal computer market. None of these companies are relying on an IBM PC compatible computer for their success. They are all relying on technological innovation to compete with IBM in the personal computer market.

Hewlett-Packard (H-P) and Digital Equipment Company (DEC) are major manufacturers of computers priced from $15,000 to $60,000, called mini-computers. The growth in mini-computers declined from 31 percent in 1981 to 17 percent in 1982. The compatible growth rate of the personal computer industry was 77 percent in 1982.[23] It may be feasible that as the personal computer becomes more technologically sophisticated, it will capture a large part of the mini-computer market. It can be observed that H-P and DEC entered the personal computer market before their traditional mini-computer business eroded.

Hewlett-Packard, which in the past has been a successful producer of mini-computers and specialty computers, entered the personal computer market with an innovative product. They marketed a product which could outperform the IBM PC, but also had a touch sensitive display screen for easy user interface. But their computer is simply not IBM compatible. Consequently, retailers have apparently been somewhat hesitant to maintain an inventory stock. Due in part to the poor performance of this personal computer, H-P reorganized several divisions recently. They rewrote dealer agreements in order to provide improved volume discounts with better payment terms in order to obtain shelf space. An estimated $30 million was planned for an advertising program, which is almost six times the 1983 advertising outlay.[24] Due to this new found aggressiveness, more than four times as many dealers as there were a year ago now maintain inventories on H-P's personal computer. Even so, Hewlett-Packard's past history in mass marketing has not been all that appealing. They are already considerably behind IBM in brand awareness, and the recent introduction of the PC AT would seem to place them in a lagged position behind IBM in the technology race. Their success in the industry may be dependent on their acquisition of various specialty niches in the personal computer market.[25]

Digital Equipment Company is another noticeable company in the mini-computer industry which entered the personal computer industry as a strategy for protecting its market share. DEC introduced three models in the personal computer marketplace, all of which are considered to be technologically superior to the IBM PC. But due to marketing errors, DEC's fiscal year ending in July of 1983 produced a net earnings decline of 32 percent. This was their first such decrease in over a decade.[26] To become more responsive to a changing market, DEC reorganized various departments but the year long reorganization created numerous internal problems of an administrative nature. Furthermore, DEC has strived to establish a noticeable identity for their products. Nevertheless, the IBM lead may pose an enormous barrier for this firm's entry into the personal computer industry.

Apple Computer has been the company which has been most affected by IBM's entry into the personal computer industry. Once the industry leader, Apple now occupies second place and appears to be losing its competitive market share to IBM at a steady pace. It is apparent that Apple is generally accepted as the primary technological innovator in the personal computer market. The company introduced the familiar Apple II, Lisa, and the Mackintosh which are all considered to be technological brain children. The Apple II, of course, was the market leader until the IBM PC became more competitive. The Lisa, which was introduced in January of 1983, was considered to be the technological marvel of the personal computer industry until the Mackintosh was introduced later that year. With the amount of failures in the personal computer industry, consumers, of course, seemingly want to purchase products from a firm they expect to exist in the forthcoming years. Thus, the sheer size of IBM has been an obstacle which Apple has been unable to overcome. In order to maintain or increase their market share, Apple must successfully "turn the marketing war into a product battle."[27] This would entail the establishment of a technical superiority of their product and the stability of their company.

Due to its enormous resources, AT&T would appear to be the primary competitor of IBM in the personal computer market. But due to the complexity of the divestiture, AT&T made a late entrance. While they have produced an IBM PC compatible computer, it is seemingly not technologically superior. The major "innovation" of AT&T is the UNIX operating system.[28]

Since it may be a superior multi-user operating system, AT&T is licensing UNIX to numerous software houses as a technique for establishing it as an industry standard. If the outcome is successful, then various hardware manufacturers and software developers would produce systems of an AT&T standard. It should be mentioned that 85 manufacturers presently have used UNIX on alternative computer systems. Even so, the recently introduced IBM PC AT utilizes Xenix, a UNIX-like system. Once Xenix is established as the personal computer standard version of UNIX, it is seemingly reasonable to assume that IBM might make slight modifications in order to make Xenix a proprietary system.[29] Even if AT&T can not establish their own industry standard operating system, the innovativeness of Bell Labs should produce some technological breakthroughs in the personal computer industry. Still, there has been a shortfall in this competitive area.

CONCLUSIONS

The entry of IBM into the personal computer market has created dramatic competitive changes in the industry. The increased unity induced by the IBM standard increased consumer confidence in the personal computer industry. Subsequent to being established as the industry standard, the IBM personal computer created an entire industry of compatible software programs and computer systems. Nevertheless, this market of compatibles may have precluded some creativity and technological advancement due to the increased risk of being an industry innovator. The expanded market for compatible computers and software that helped establish IBM as the industry could, of course, become an industry discard as IBM experiences new technological changes and alternative marketing strategies.

As the industry has matured, barriers to entry in the realm of both software and hardware have resulted from, among other considerations, economies of scale. While some large manufacturers could apparently challenge IBM's growing dominance, none, so far, have established themselves as truly viable challengers.

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[1] A personal computer is generally considered priced between $1,000 and $5,000.

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[6] Reporting on National Computer Conference in *Creative Computing*, (October 1982), p. 182.

[7] Cary Lu, "Microcomputers: A Buying Guide for Christmas," *High Technology*, (December 1983), pp. 29-32.

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[15] Richard A. Schaffer, "Technology: IBM's Shortage ... Electronic Dog Tags ... Talking Watches," *Wall Street Journal*, June 1983, p. 19; and Rubin and Strehlo, pp. 52-65; and pp. 182-189.

[16] Kneale, p. 35.

[17] Peter D. Petre, "Meet the Lean Mean New IBM," *Fortune*, June 13, 1983, pp. 68-82; and Kneale, "IBM's AT Computer," p. 33.

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[19] Alexander L. Taylor, III, "Sad Tales of Silicon Valley," *Time*, September 3, 1984, pp. 58-59.

[20] *Ibid.*

[21] Alexander L. Taylor, III, "A Giant Flexes Its Muscles," *Time*, August 27, 1984, p. 37.

[22] Bob Davis, "Newcomers in Personal Computers Have Trouble Breaking Into Market," *Wall Street Journal*, February 18, 1983, p. 21; and Kathleen K. Wiegner, "Computers," *Forbes*, January 2, 1984, pp. 180-186.

[23] Bulkeley, p. 25; and Susan Fraker, "How DEC Got Decked," *Fortune*, December 1983, pp. 83-92.

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[25] *Ibid.*

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[27] Steven Jobs in "Apple Bites Back," by Ann M. Morrison, *Fortune*, February 20, 1984, pp. 86-100.

[28] Gene Bylinsky, "The Holes in AT&T's Computer Strategy," *Fortune*, September 17, 1984, pp. 68-82.

[29] *Ibid.*

ECONOMIC EDUCATION: A CONTINUING COMMENTARY

GOVERNMENT AND THE MARKET ECONOMY

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Even though the Reagan Administration's economic policy brings to mind tax cuts, budgetary deficits, and increased military spending, it may be remembered in history as the administration that reversed the historical trend toward a growing economic role for government. Indeed there are persistent rumors to the effect that massive budgetary deficits are engineered to make cuts in government social programs palatable. Discounting that report, there is, nevertheless, a track record of deregulating industry after industry and curtailment of, at least, the growth of social programs.

Pleas for limiting the role of government in the economy go back at least to Adam Smith, whose world-shaking work, *Wealth of Nations*, which was published in 1776, was primarily aimed at breaking the dominance of mercantilist policies of government control. Smith eloquently stated that if government regulations were loosened, individual self-interest coupled with competition, would result in the greatest social benefit. He noted, for example, that if left free, the baker, pursuing his own profit in competition with other bakers, would provide the consumer with the best loaf of bread at the lowest possible price.

Economic philosophers building on the work of Smith have put together a theory of free markets which are flexible, self-adjusting, and efficient and which make the consumer king. The total theory is so eloquent in its simplicity that there is a great temptation for one to become a free marketeer. However, like so many aspects of modern life, the beauty of the theory is marred by the ugly facts of life. There are market failures that will not go away; and, thus, there is a role for government.

Market failures occur when there is divergence between private cost or benefit and social cost or benefit. When the additional productive cost of a loaf of bread, including a normal profit, is equal to the benefit of that loaf of bread to society as expressed by its price, the market is working efficiently. But when some of the cost of production is not borne by the producer, such as environmental pollution, or some of the benefit cannot be captured by those who pay, such as private police protection, social cost/benefit diverges from private cost/benefit with the market failing to efficiently allocate resources.

Private and social benefits may diverge in the production of social goods. Social goods, for instance national defense, have two underlying characteristics. First, there is shared consumption so that one's use does not preclude another's. You and I can consume the security of national defense at the same time. A second characteristic is that non-payers cannot be excluded so that there may be free riders. If you pay for your portion of national defense and I, your next door neighbor, choose not to pay, I am nevertheless protected. Because of these characteristics, the social benefit exceeds the private benefit and private firms will not find it profitable to produce national defense. If it is to be provided, it will be provided by government.

Private and social costs/benefits diverge in cases where there are externalities. Externalities may be defined as costs or benefits that do not fall on parties to a transaction but on society. An example would be a paper mill that dumps its waste into a river, polluting the water for people downstream. The pollution is part of the cost of production that is not paid by individuals who purchase the paper product but is borne by the community downstream. Government enters in to internalize the externality by forcing the producer and therefore the consumer to pay the full cost of production. Another example is private education which provides an external benefit to the community, even those with no children, by generating a more productive, enlightened citizenry, thus raising the argument for public tax-supported education.

Private and social costs/benefits may diverge where there is monopoly or market power. Lack of competition may allow the monopolist to charge higher prices and limit output relative to price and output under competitive situations. Government intervenes to take anti-trust action, regulate price and output, or publicly own the enterprise. American history offers numerous examples of all three instances of government intervention.

Certainly government too has its failures. Many people view the heavy hand of government as always undermining incentives, efficiency, and productivity; and it is tempting to adopt a libertarian stance. But such a solution is too easy in this imperfect world.

In production, distribution and consumption of most goods and services, public and private costs/benefits are essentially the same and the role of government can be minimized in the interest of efficiency. However, where there are market failures, efficiency is served by active interference by government. The result is the mixed economy that we have in this country with a role for government in a primarily private market system.

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THE ARKANSAS ECONOMY: WHICH WAY FROM HERE

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Throughout the present economic recovery, the unemployment rate in Arkansas has continued to be above the national average. With the shocks from plant closings in the manufacturing sector, the seasonally adjusted unemployment rate in the second half of 1985 was running in excess of 9 percent. At best, it will take an extended period to create enough new jobs to offset this high level of unemployment and, even then, new jobs may be in the lower paying trade and service sectors.

The continued poor economic outlook for the agricultural sector offers little hope for assistance to the overall economy during 1986. Recent drops in oil prices and declines in the interest rate may reduce operating costs somewhat but there appears to be no immediate relief for the relatively low farm commodity prices. The exception to the poor agricultural outlook is in the poultry industry where continued expansion is expected which should lend strength to the economy in the western part of the state.

With interest rates continuing to decline, the demand for housing and consumer durables should improve nationally. Thus, this will bring forth improved conditions in the forest products industry and among durable good manufacturers. Also, if the dollar weakens, the pressure from foreign manufacturers on Arkansas businesses should lessen somewhat.

Overall, the first part of 1986 seems to exhibit cause for neither optimism nor alarm. With inflation remaining low, real personal income should grow at a modest annual growth rate of about two percent. Later in the year the outlook may improve somewhat if no further substantial job losses are registered. Still, there seems to be no reason to expect the growth in real personal income to reach much beyond four percent in late 1986 or early 1987.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,016,100	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
	Oct.	1,051,010	952,580	61,340	211,050	9.2
	Nov.	1,051,840	954,840	61,240	208,730	9.3
	Dec.	1,057,450	960,180	61,190	214,250	9.2
1985						
	Jan.	1,017,950	937,240	61,130	214,390	8.1
	Feb.	1,011,770	929,750	60,900	212,760	8.4
	March	1,017,180	934,850	60,850	211,250	8.2
	April	1,026,060	943,800	60,830	207,460	8.0
	May	1,029,360	952,420	60,710	209,070	7.4
	June	1,048,520	965,550	60,660	209,000	8.0
	July	1,069,120	974,050	60,600	209,770	8.8
	Aug.	1,072,910	975,160	60,590	209,940	9.1
	Sept.	1,077,030	974,940	60,530	209,190	9.5
	Oct.	1,077,150	972,840	60,410	208,820	9.6

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1984 Q-I	1984 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III
Arkansas	+ 3.0	+ 3.0	+ 2.5	+ 3.0	− 2.8	+ 2.4
United States	+ 2.1	+ 2.1	+ 1.6	+ 1.5	+ 1.0	+ 1.8

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	12,790	14,640	15,892	17,862	19,135^R	20,004^R	22,502^R	24,538^R
Apr-Jun	13,206	14,774	15,851	18,078	19,278^R	20,266^R	22,569^R	23,850^R
Jul-Sep	13,798	15,208	16,527	18,811	19,345^R	20,686^R	23,238^R	24,434^P
Oct-Dec	14,102	15,640	17,005	18,912	19,771^R	21,229^R	23,823^R	
Annual	13,474	15,066	16,319	18,416	19,382	20,546	23,033	

^{R} = revised estimates (October 1985)
^{P} = preliminary estimate

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III
Arkansas	+ 1.2	+ 1.2	+ 1.7	− 0.7	+ 0.7
United States	+ 1.6	− 0.6	+ 0.5	+ 0.3	+ 0.4

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	5,272.9	5,915.7	6,523.2	7,158.6	7,427.7	7,859.4	8,772.0	9,221.7^R
Apr-Jun	5,503.3	6,037.5	6,390.0	7,358.6	7,514.9	8,089.0	8,848.2	9,157.8^R
Jul-Sep	5,612.0	6,119.5	6,633.7	7,565.0	7,492.9	8,322.1	8,952.7	9,218.4
Oct-Dec	5,703.7	6,268.1	6,896.7	7,568.0	7,674.1	8,458.5	9,064.6	
Annual	5,523.0	6,085.2	6,610.9	7,412.5	7,527.4	8,182.2	8,909.4	

^{R} = revised

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-II thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III
Arkansas	− 7.1	− 3.4	+ 4.5	+ 4.0	+ 4.0	+ 6.2
United States	− 0.2	+ 1.8	+ 4.3	− 6.8	− 4.6	+ 1.0

NA - not available

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	3,139,796	3,442,336	3,410,760	2,990,044	3,354,452	2,833,156	3,408,036	3,326,716
Apr-Jun	2,715,736	3,059,744	3,554,600	2,806,176	3,795,964	2,641,692	3,165,680	3,460,204
Jul-Sep	3,082,684	3,076,148	3,870,404	3,052,440	3,163,160	3,292,736	3,058,936	3,674,548
Oct-Dec	2,986,880	3,143,660	4,576,516	2,987,076	3,200,636	2,801,852	3,197,856	
Annual	2,981,274	3,180,472	3,853,070	2,958,934	3,378,553	2,892,359	3,207,627	

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1984 Q-I thru 1984 Q-II	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III
Total	+ 9.9	− 4.2	− 5.7	− 19.1	+ 15.8	+ 12.6
Internal	+ 10.8	− 14.0	− 16.7	− 21.6	+ 76.5	− 24.4

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time Period		Traffic Tonnages			
		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985[2]		2,103	3,191	2,521	8,335
	Jan-Mar	1,827	3,269	1,582	7,357
	Apr-Jun	2,511	2,494	2,792	8,522
	Jul-Sep	2,280	3,694	2,112	9,592
	Oct-Dec	1,782	2,901	2,305	7,439

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	880,912	838,008	613,040	550,568	511,940	895,484	1,044,788	777,160
Apr-Jun	988,740	645,112	564,516	642,712	598,212	919,996	975,436	783,320
Jul-Sep	903,144	756,032	696,460	548,380	689,232	908,188	900,232	692,810
Oct-Dec	888,712	575,136	686,040	585,608	780,880	901,384	773,368	
Annual	992,005	706,530	664,550	632,800	648,130	906,260	917,550	

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	314,489	371,300	289,236	356,916	376,064	269,324	417,860	337,100
Apr-Jun	228,472	420,520	349,804	278,808	210,008	353,504	437,076	405,470
Jul-Sep	383,588	296,012	396,316	259,592	317,844	389,684	543,684	453,289
Oct-Dec	262,064	441,984	390,148	311,048	220,548	473,460	481,360	
Annual	292,842	381,809	355,100	302,100	279,600	370,100	467,700	

PRELIMINARY LABOR FORCE ESTIMATES
December 1985

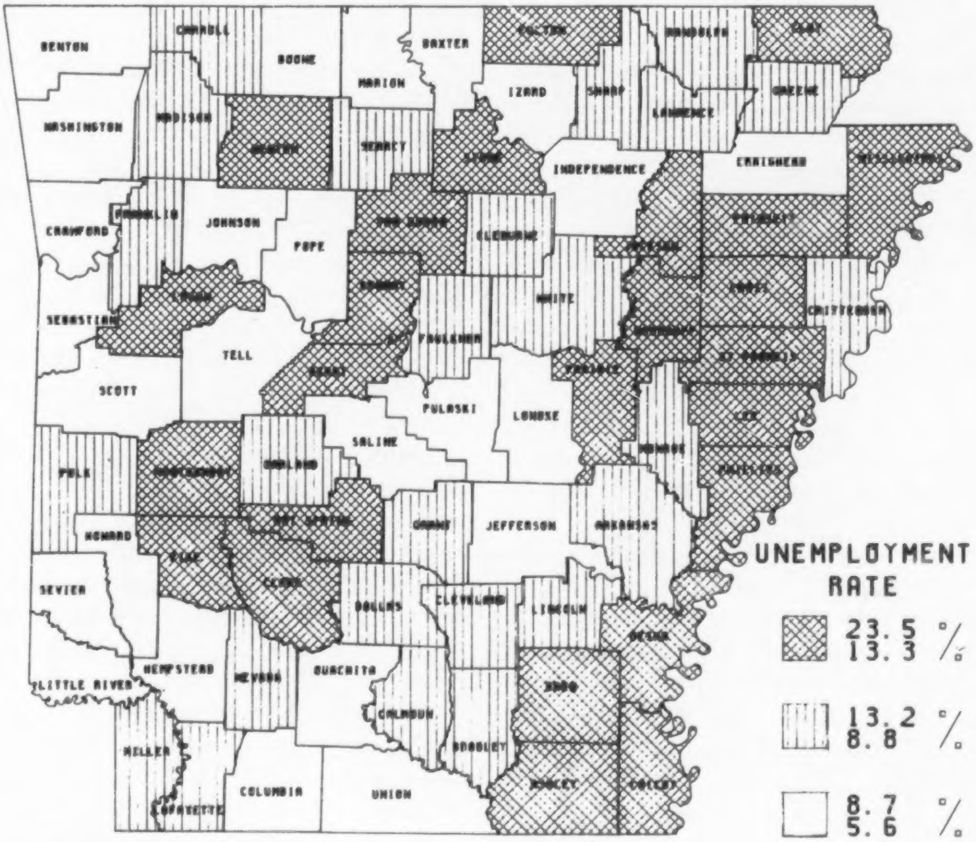
State and MSA's	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	115,780,000	6.7	108,063,000
STATE OF ARKANSAS	1,047,900	9.4	949,800
Fayetteville-Springdale MSA (Washington County)	49,975	5.9	47,050
Fort Smith MSA (Crawford & Sebastian Counties in Arkansas and Sequoyah County in Oklahoma)	84,525	8.0	77,725
Little Rock-North Little Rock MSA (Faulkner, Lonoke, Pulaski & Saline Counties)	238,300	6.7	222,300
Pine Bluff MSA (Jefferson County)	38,925	7.8	35,875

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	10,525	10.0	9,475	Lee	4,500	18.3	3.785
Ashley	11,275	13.3	9,775	Lincoln	3,250	12.3	2,850
Baxter	10,475	6.4	9,800	Little River	6,575	8.7	6,000
Benton	39,800	5.6	37,575	Logan	7,650	15.0	6,500
Boone	14,325	6.3	13,425	Lonoke	17,900	8.2	16,425
Bradley	4,900	10.2	4,400	Madison	5,875	10.2	5,275
Calhoun	2,900	10.3	2,600	Marion	6,575	6.1	6,175
Carroll	9,450	10.1	8,500	Miller	17,625	9.5	15,950
Chicot	6,175	15.0	5,250	Mississippi	24,825	16.3	20,775
Clark	11,275	16.2	9,450	Monroe	4,750	13.2	4,125
Clay	8,650	17.3	7,150	Montgomery	2,575	13.6	2,225
Cleburne	7,600	12.8	6,625	Nevada	4,175	10.2	3,750
Cleveland	1,675	11.9	1,475	Newton	2,300	14.1	1,975
Columbia	14,150	7.2	13,125	Ouachita	14,800	8.6	13,525
Conway	7,575	14.5	6,475	Perry	3,025	14.9	2,575
Craighead	31,750	7.5	29,375	Phillips	12,400	17.3	10,250
Crawford	19,600	8.0	18,025	Pike	3,550	13.4	3,075
Crittenden	25,850	9.2	23,475	Poinsett	10,300	14.3	8,825
Cross	8,600	13.4	7,450	Polk	5,225	10.5	4,675
Dallas	3,900	10.3	3,500	Pope	18,925	7.8	17,450
Desha	6,900	13.4	5,975	Prairie	3,650	17.1	3,025
Drew	8,025	13.4	6,950	Pulaski	169,025	6.1	158,675
Faulkner	24,200	8.8	22,075	Randolph	7,425	12.8	6,475
Franklin	5,750	10.0	5,175	St. Francis	13,325	19.3	10,750
Fulton	2,825	14.2	2,425	Saline	27,175	7.5	25,125
Garland	30,125	11.2	26,750	Scott	4,400	6.3	4,125
Grant	4,500	11.7	3,975	Searcy	2,800	10.7	2,500
Greene	13,625	11.7	12,025	Sebastian	48,600	7.6	44,900
Hempstead	10,450	7.2	9,700	Sevier	6,850	8.4	6,275
Hot Spring	11,200	19.2	9,050	Sharp	4,375	9.7	3,950
Howard	7,675	6.2	7,200	Stone	3,600	14.6	3,075
Independence	15,900	8.2	14,600	Union	24,075	6.7	22,450
Izard	4,400	6.8	4,100	Van Buren	4,425	13.6	3,825
Jackson	9,075	17.6	7,475	Washington	49,975	5.9	47,050
Jefferson	38,925	7.8	35,875	White	23,825	12.9	20,750
Johnson	9,375	7.7	8,650	Woodruff	4,575	23.5	3,500
Lafayette	3,300	9.8	2,975	Yell	8,075	6.8	7,525
Lawrence	8,725	10.0	7,850				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
DECEMBER 1985

IN DECEMBER, ARKANSAS' CIVILIAN LABOR FORCE DECREASED 34,900 TO TOTAL 1,047,900. TOTAL EMPLOYMENT DECREASED 30,200 TO TOTAL 949,800. UNEMPLOYMENT FELL 4,700 TO TOTAL 98,100. OF THE 75 COUNTIES, BENTON HAD THE LOWEST UNEMPLOYMENT RATE AT 5.6 PERCENT AND WOODRUFF HAD THE HIGHEST AT 23.5 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 48 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 5.9 PERCENT AND FORT SMITH HAD THE HIGHEST RATE AT 8.0 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE PINE BLUFF MSAS WERE 6.7 AND 7.8 PERCENT, RESPECTIVELY.


BENTON
CARROLL
BOONE
BAXTER
FULTON
RANDOLPH
CLAY
MARION
IZARD
SHARP
LAWRENCE
GREENE
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
CONWAY
WHITE
CROSS
CRITTENDEN
SEBASTIAN
LOGAN
YELL
FAULKNER
WOODRUFF
ST FRANCIS
PERRY
PRAIRIE
SCOTT
PULASKI
LONOKE
LEE
SALINE
MONROE
POLK
MONTGOMERY
GARLAND
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
HEMPSTEAD
NEVADA
OUACHITA
DREW
LITTLE RIVER
CALHOUN
MILLER
BRADLEY
COLUMBIA
UNION
ASHLEY
CHICOT
LAFAYETTE
UNEMPLOYMENT RATE
23.5 %
13.3 %
13.2 %
8.8 %
8.7 %
5.6 %

UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

THE MINERAL INDUSTRY OF ARKANSAS IN 1985

The value of nonfuel mineral production in Arkansas in 1985 decreased slightly to an estimated $270.7 million. The State continued as a major producer nationally of abrasives, bauxite, and bromine. Construction minerals, stone, and sand and gravel also contributed significantly to the State's economy but served regional markets.

Arkansas' economy remained sluggish as evidenced by employment in mineral related sectors. Compared to 1984 levels, construction employment increased slightly, but that of mining, primary metals, and stone and clay remained constant or decreased. Additionally, national markets for bauxite and bromine products also were adversely impacted, resulting in reduced demand for minerals.

Late in the year, Arkansas Chemicals, Inc., El Dorado, announced closure of parts of its bromine operation for an indefinite period. Increased imports and decreased use in gasoline have resulted in a decrease of domestic and export markets and an oversupply of elemental bromine. Companies plan expansions into other bromine markets such as flame retardants, drilling fluids, and well-completion fluids.

Alcoa, at Bauxite, operated at reduced levels of capacity during the year. Late in the year, Alcoa announced permanent closure of its alumina production facilities with plans to obtain the required alumina from its Point Comfort operation in Texas. Norton-Alcoa Proppants completed its $100 million expansion program at Fort Smith. Raw material will be trucked from Alcoa's Buaxite plant.

Citing high energy costs and low prices for aluminum, Reynolds Metals Co. shut down its Arkadelphia and Jones Mill reduction plants in October. Arkadelphia had operated at full capacity while Jones Mill was at 40% capacity. Jones Mill plant received ingots from Canadian Reynolds Metals Co. Ltd. during the year.

Alumax Mill Products Div., AMAX Inc., began construction of a $100 million aluminum rolling mill and melt shop at Texarkana. MacSteel Division of Quanex Corp. dedicated its $125 million specialty bar plant in Fort Smith early in the year; the plant has a capacity of 280,000 tons per year. UMETCO Minerals Corp. temporarily closed its vanadium operation at Hot Springs late in the year. The facility was expected to remain closed through most of 1986.

Source: U.S. Department of the Interior, Tuscaloosa Regional Office of State Activities in cooperation with the Arkansas Geological Commission.

TABLE 1
Nonfuel mineral production in Arkansas[1]

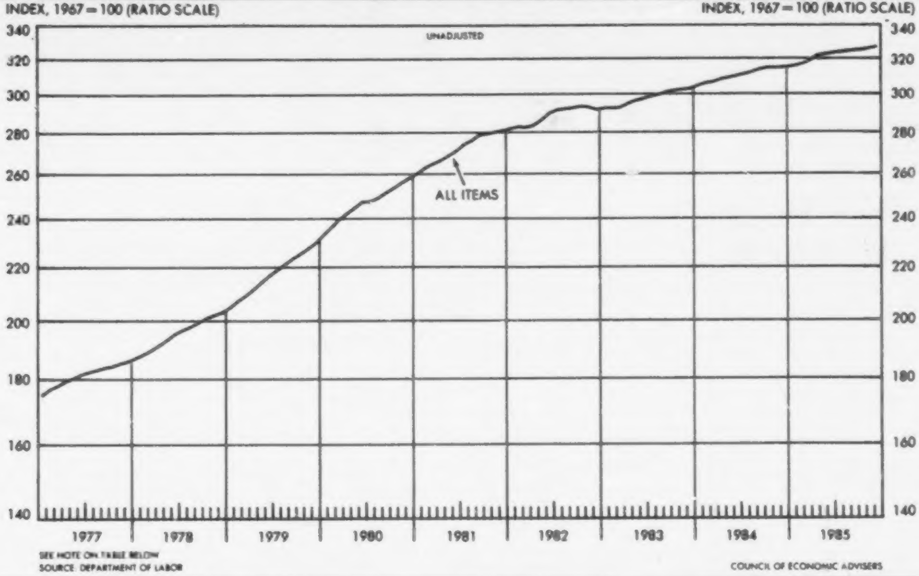
Mineral	1984 Quantity	1984 Value (thousands)	1985[p] Quantity	1985[p] Value (thousands)
Clays ____ thousand short tons	1,019	$7,838	1,002	$7,715
Gem stones ____	NA	200	NA	200
Sand and gravel:				
Construction ____ thousand short tons	8,334	23,786	8,500	24,300
Industrial ____ do	459	6,207	405	5,500
Stone:				
Crushed ____ do	[e]15,200	[e]59,800	13,900	52,600
Dimension ____ do	--	--	9	573
Combined value of abrasives, bauxite, bromine, cement, gypsum, lime, talc, tripoli, and vanadium ____	XX	174,797	XX	179,795
Total ____	XX	$272,628	XX	$270,683

[e]Estimated. [p]Preliminary. NA-Not available. XX-Not applicable.

[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

CONSUMER PRICES

In December, the consumer price index for all urban consumers rose 0.4 percent, seasonally adjusted (0.2 percent not seasonally adjusted). The index was 3.8 percent above its year-earlier level.



[1967=100, except as noted; monthly data seasonally adjusted, except as noted]

Period	All items [1]	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [4]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel [3]			
				Total	Renters' costs [2]	Homeowners' costs [2]	Maintenance and repairs								
	NSA					NSA	NSA								
Rel. imp. [5]	*100.0*	*18.7*	*37.7*	*21.8*	*7.1*	*14.1*	*0.5*	*8.2*	*5.1*	*21.6*	*3.4*	*5.5*	*6.3*	*11.5*	*48.0*
1977	181.5	192.2	186.5	191.1			214.7	202.2	154.2	177.2	142.9	188.2	202.4	207.3	169.5
1978	195.4	211.4	202.8	210.4			233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7			256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7			285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7			314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0			334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1984: Dec	315.5	307.2	341.8	370.1	111.4	109.8	364.4	389.4	202.4	315.0	210.9	368.8	389.0	423.0	275.9
1985: Jan	316.1	307.7	342.3	371.0	111.8	110.0	366.0	389.1	202.4	315.8	211.6	363.8	390.3	419.8	277.2
Feb	317.4	309.3	343.7	373.2	112.4	110.7	366.8	388.1	204.3	315.6	213.3	354.2	392.0	414.1	278.7
Mar	318.8	309.2	344.6	374.2	112.9	110.8	370.0	389.8	205.3	319.7	214.3	367.6	395.3	422.1	279.9
Apr	320.1	308.7	345.9	375.7	113.5	111.3	368.0	392.0	205.4	322.3	214.3	378.7	397.5	429.9	280.4
May	321.3	308.3	348.1	379.4	114.6	112.4	366.2	392.7	205.2	321.6	213.9	380.5	399.9	431.2	280.5
June	322.3	308.5	349.2	380.9	115.1	112.8	367.6	395.0	205.8	321.2	214.5	381.3	402.6	431.9	281.1
July	322.8	308.8	350.2	383.0	115.8	113.5	367.8	394.9	205.3	320.7	214.9	380.2	404.5	430.6	281.5
Aug	323.5	308.9	351.9	385.6	116.5	114.3	370.6	394.4	205.9	319.5	215.7	376.6	406.5	427.9	282.1
Sept	324.5	309.9	352.6	386.5	116.8	114.6	368.7	395.9	207.0	318.8	216.4	373.6	408.6	427.2	282.6
Oct	325.5	310.6	353.6	388.8	117.7	115.1	368.5	393.5	208.3	319.3	217.5	370.9	410.7	423.8	284.1
Nov	326.6	312.7	355.4	391.2	118.5	115.8	372.7	394.9	208.8	321.6	217.5	376.3	412.8	427.5	285.2
Dec	327.4	315.2	356.4	392.4	118.6	116.3	373.7	396.6	208.3	323.1	218.3	379.8	415.2	430.7	285.9

[1] Includes items not shown separately.

[2] December 1982=100.

[3] Includes direct pricing of diesel and gasohol beginning September 1981.

[4] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.

[5] Relative importance, December 1984.

NOTE.—NSA indicates data are not seasonally adjusted.

Data beginning 1978 are for all urban consumers; earlier data are for urban wage earners and clerical workers.

Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

REVIEW EDITORIAL POLICY STATEMENT

The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

For a book: list (as appropriate) author's first name, middle initial, and surname; the title of the book; publication data including place, publisher, and date; and the page number(s) in the citation.

For an article in periodical: list (as appropriate) the author's first name, middle initial, and surname; title of the article; name of the periodical; volume number or month and year for the issue; and page number(s) in the citation.

EDITOR'S NOTE

Data are published, where possible, in a seasonally adjusted, annual rate format which is consistent with that in which national data are ordinarily published. While complete historical series are not published in this format, they are available upon request.

It should be noted that the most substantial revisions in the modified data series are in the data on value added by manufacture and cash receipts from farm marketings. The newly developed estimating equation for value added captures price changes and also appears to have much higher statistical reliability than previously utilized in the equation. Inclusion of price changes, in particular, contributes to substantially higher new estimates for value added than those published previously. Farm cash receipts have been modified to reflect both the latest available estimates and the new seasonal indices. At this juncture, every seasonally adjusted series published in the *Review* uses the same deseasonalization process.

The staff, as always, welcomes comments and suggestions for further improvement.

7/14/86 45930-1A

Arkansas Business and Economic Review

A Publication of the University of Arkansas

Volume 18, Number 4, 1985

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The Corporate Microcomputer Menace

The Impact of a Ten Percent Usury Ceiling: The Arkansas Case

The Economic Impacts of Higher Education In Arkansas

The Arkansas Economy: Quarter IV, 1985

Selected Arkansas and U.S. Economic Indicators

EDITORIAL AND PUBLICATION INFORMATION

The *Arkansas Business and Economic Review* is published quarterly by the Bureau of Business and Economic Research as a public service and mailed on request without charge to addresses in the U.S. The Bureau is a division of the College of Business Administration, University of Arkansas, Fayetteville. The College is fully accredited by the American Assembly of Collegiate Schools of Business. The Bureau is a member of both the Association for University Business and Economic Research and The Travel and Tourism Research Association.

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The cover design was created by Printing Services, University of Arkansas.

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Bureau of Business and Economic Research
College of Business Administration
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AN ANALYSIS OF REGIONAL INVESTMENT IN RESPONSE TO RELATIVE RATE OF RETURN FOR ARKANSAS

Chang-Yang Lin
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Eastern Kentucky University

INTRODUCTION

Application of locational theory on the behavior of regional investment has been the subject of several empirical studies.[1] In these studies, locational factors that have been tested as the determinants of regional investment are grouped into five categories: labor productivity, state or local taxes, market proximity, resource availability, and agglomeration economies. The results of these studies were generally regarded as a partial success.

Instead of examining the effects of individual locational factors, Engle, in his study on Massachusetts manufacturing industries, analyzed the aggregate effects of locational differences on the variation of regional investment.[2] He stated that "... the level of investment in a region depends not only on the marginal rate of return in the region, but also upon the rate of return available elsewhere."[3] In addition to consideration of locational differences, the conditions prevailing in the national economy might be taken into account for the arguments that both the market and the spatial framework of regional investment decisions are primarily national. National investment, which has been examined in many studies, is a potential candidate for the representation of national economic conditions.[4] It has been argued that the greater the national investment, the greater the likelihood that this level of investment can be directed into all regions.

These facets of regional investment decisions are investigated in this paper for Arkansas manufacturing industries at the two-digit Standard Industrial Classification (SIC) level.[5] The data necessary for this study is discussed under **Data Analysis**. The empirical investment equations, having been subjected to several estimation techniques, are presented under **Regional Investment Equations**. All of these empirical equations are evaluated by both the theoretical criteria and the statistical tests. The difficulties encountered in evaluating the equations are discussed and the reasons some industries yielded poor results are analyzed under **Industries with Poor Results**. The results derived in this study have provided desired information regarding the elasticities of locational differences in aggregate. The use of these elasticities on policy implications is illustrated under **Implication for Policy Analysis and Conclusion**.

DATA ANALYSIS

The most critical problem of this study concerns the measurement of the relative rate of return to capital. Unlike the national rate of return, profits and capital stocks necessary for the calculation of the regional rate of return were not collected. Instead they were derived using the perpetual inventory method and the regression technique.

Capital stock (K) in a region for a particular industry at a specified period of time (t) is given by

$$K_t = (I_0 - D_0) + (I_1 - D_1) + \ldots + (I_t - D_t)$$

where I is regional investment and D is depreciation.[6] In this equation, historical data on Arkansas investment from 1954 to 1976 was obtained from the *Annual Survey of Manufactures* (ASM) and the *Census* issues. This data was then converted to constant dollars by using the investment deflators supplied by the Bureau of Labor Statistics (BLS). For the years prior to 1954, Arkansas investment in constant dollars was derived from constant U.S. investment by assuming that, for each industry, a state's share of national investment is proportional to its share of national value-added.[7] The value of depreciation was calculated using the depreciation function supplied by the BLS.

On regional profits, regression coefficients (b) estimated from a national model of profits, see equation (1), were substituted into a regional model, see equation (2), to derive a series of Arkansas profits, where the difference between value-added (V) and total payroll (W) is specified as the only determinant of profits (P) at both national (U.S.) and regional (AR) levels at a specified period of time (t):

$$P_t^{US} = b\,(V_t^{US} - W_t^{US}) \qquad (1)$$
$$P_t^{AR} = b\,(V_t^{AR} - W_t^{AR}) \qquad (2)$$

The Arkansas profits series so obtained was not ideal because variables other than value-added and total payroll were excluded from the derivation process. This was because other potential variables were neither consistent nor sufficient compared with value-added and total payroll. Data on these two variables at both regional and national levels were obtained from the ASM and the *Census* issues. Data on U.S. profits were taken from the *National Income and Product Accounts of the United States, 1929-1976: Statistical Tables*.

U.S. investment is U.S. Labor Department investment in constant dollars. U.S. capital stocks are Labor Department net stocks. Both are available on a computer tape supplied by the BLS.

REGIONAL INVESTMENT EQUATIONS

A great many forms of regional investment equations were estimated for fifteen Arkansas manufacturing industries by ordinary least squares (OLS) with a time series sample of twenty-three annual observations from 1954 to 1976. The best results were obtained from the following logarithmic equation, in which I is regional investment; I^{US} is U.S. investment; R is relative rate of return; t is time; e is the error term; and B_0, B_1, and B_2 are parameters:

$$\ln I_t = B_0 + B_1 \ln I_t^{US} + B_2 \ln \left(\frac{R_t + R_{t-1} + R_{t-2}}{3}\right) + e_t$$

Note that R reflects dynamic behavior since it is measured by a three-year moving average to account for the lag in regional investment decisions. The summary statistics are presented in Table 1.

The explanation offered by this model is not entirely satisfactory. Nevertheless, these equations are fairly successful in the usual statistical tests and theoretical examinations. The entire regression for each individual industry, with the exception of industries SIC 26, 27, and 29, is significant by the F-test at the 0.05 level.

The R^2, as expected, was not very strong and ranged from 0.1486 for industry SIC 29 to 0.8210 for industry SIC 35. The regression coefficients may be examined with regard both to signs and statistical significance tests. All fifteen coefficients of U.S. investments were of the required positive sign, but by the t-test only eleven of them were statistically different from zero at the 0.05 level. The eleven relative rates of return carried the correct positive sign

TABLE 1
SUMMARY OF ESTIMATES BY ORDINARY LEAST SQUARES FROM EQUATION: $\ln I_t = B_0 + B_1 \ln I_t^{US} + B_2 \ln R_t + e_t$

	Regression Coefficients[a]				
SIC	$\ln I^{US}$	$\ln R$	Intercept	R^2	F
25	1.32 (6.96)	0.36 (1.12)	−7.61* (−3.33)	0.7095	24.42*
32	0.30 (0.61)	0.71* (2.50)	4.26 (0.62)	0.2694	3.69*
33	2.14* (5.14)	1.31* (5.06)	−24.10* (−3.93)	0.7440	29.07*
34	2.15* (3.63)	0.34 (1.17)	−21.93* (−2.66)	0.4699	8.87*
35	2.51* (9.19)	1.58* (2.99)	−29.01* (−7.07)	0.8210	45.87*
36	1.02* (2.16)	1.82* (2.62)	−6.46 (−0.98)	0.3809	6.15*
37	2.29* (4.79)	1.33* (4.51)	−25.92 (−3.76)	0.6510	18.65*
20	1.84* (4.42)	0.31 (0.42)	−16.71** (−1.78)	0.5414	11.81*
22	1.43* (5.83)	0.76** (1.84)	−11.66* (−3.59)	0.7386	28.26*
23	1.42* (4.46)	−3.07 (−0.89)	−10.18* (−2.51)	0.6726	20.54*
26	0.04 (0.14)	−1.77** (−1.84)	9.66* (2.13)	0.1507	1.77
27	1.43** (1.95)	−0.05 (−0.15)	−11.41 (−1.14)	0.2571	3.46**
28	0.67* (2.35)	1.07* (2.84)	−0.25 (−0.06)	0.6272	16.83*
29	0.62 (1.14)	−0.31 (−1.74)	−0.67 (−0.09)	0.1486	1.75

[a] Values within parentheses are t-ratios.
*Significant at the 0.05 level or better.
**Significant at the 0.10 level.

and seven of them were statistically significant.

To further appraise the relative rate of return variable as a determinant of regional investment decisions the Mean Square Error (MSE) was used as the criterion to test usefulness. In view of the results (see Table 2), the addition of the relative rate of return variable when the U.S. investment variable is already in the model shows a decrease in twelve of the fifteen industries. Only industries SIC 20, 23, and 27 failed to pass this criterion.

INDUSTRIES WITH POOR RESULTS

The industries for which the relative rate of return variable was either negative or insignificant were mostly nondurable goods industries. Industries SIC 26, 27,

TABLE 2
THE OBSERVED MEAN SQUARE ERROR (MSE)

SIC	Variables in the Model[a]	MSE	SIC	Variables in the Model[a]	MSE
20	$\ln I^{US}$	0.1648	24	$\ln I^{US}$	0.0865
	$\ln R$	0.3232		$\ln R$	0.1952
	$\ln I^{US}$, $\ln R$	0.1715		$\ln I^{US}$, $\ln R$	0.0743
22	$\ln I^{US}$	0.1882	25	$\ln I^{US}$	0.1104
	$\ln R$	0.4344		$\ln R$	0.3553
	$\ln I^{US}$, $\ln R$	0.1689		$\ln I^{US}$, $\ln R$	0.1090
23	$\ln I^{US}$	0.2694	32	$\ln I^{US}$	0.3214
	$\ln R$	0.5173		$\ln R$	0.2493
	$\ln I^{US}$, $\ln R$	0.2722		$\ln I^{US}$, $\ln R$	0.2570
26	$\ln I^{US}$	0.6702	33	$\ln I^{US}$	0.6751
	$\ln R$	0.5734		$\ln R$	0.6693
	$\ln I^{US}$, $\ln R$	0.6015		$\ln I^{US}$, $\ln R$	0.3029
27	$\ln I^{US}$	0.3923	34	$\ln I^{US}$	0.6387
	$\ln R$	0.4663		$\ln R$	0.9915
	$\ln I^{US}$, $\ln R$	0.4415		$\ln I^{US}$, $\ln R$	0.6276
28	$\ln I^{US}$	0.2242	35	$\ln I^{US}$	0.2423
	$\ln R$	0.2221		$\ln R$	0.8747
	$\ln I^{US}$, $\ln R$	0.1827		$\ln I^{US}$, $\ln R$	0.1757
29	$\ln I^{US}$	0.7135	36	$\ln I^{US}$	2.2974
	$\ln R$	0.6601		$\ln R$	2.1061
	$\ln I^{US}$, $\ln R$	0.6508		$\ln I^{US}$, $\ln R$	1.7946
			37	$\ln I^{US}$	1.2282
				$\ln R$	1.3083
				$\ln I^{US}$, $\ln R$	0.6399

[a] In addition to the variable(s) in question listed in the table, the intercept term has been included in every case.

and 29 remained theoretically unacceptable; and SIC 20, 23, 25, and 37 had an insignificant coefficient on relative rate of return. These seven industries accounted for 38 percent of Arkansas' manufacturing investment in 1954; the eight industries with relatively satisfactory results, for 61 percent; and the industries for which data was not available, for less than 1 percent.

Particular circumstances in respect to statistical problems, inadequate measurement of variables, or special characteristics of the individual industries might explain why some industries yielded poor results on the relative rate of return variable. When estimated by the seemingly unrelated regressions (SUR) procedure, most of the regional investment equations produced lower standard error of the regression coefficients. More significant coefficients were then found (see Table 3). This evidence clearly implies that possible correlation of errors across equations has contributed to the poor results for industries such as SIC 23 and 27 when OLS was used. This leads to the conclusion that the SUR procedure was required and its results were preferred to the OLS solution.

It is also possible to explain the poor results from the measurement of relative rate of return to capital. First, a three-year moving average might not be an appro-

TABLE 3
ESTIMATES BY SEEMINGLY UNRELATED REGRESSIONS

SIC	Variable	$\hat{B}$	$\hat{B}$	SIC	$\hat{B}$	$\hat{B}$
20	ln I^{US}	1.69*	0.36	24	1.08*	0.14
	ln R	0.23	0.56		0.91*	0.28
	Intercept	−14.60*	5.26		−4.36*	1.92
22	ln I^{US}	1.27*	0.18	25	1.27*	0.17
	ln R	0.40	0.29		0.25	0.25
	Intercept	−9.33*	2.46		−7.09*	2.06
23	ln I^{US}	1.53*	0.22	32	0.16	0.33
	ln R	0.03	0.26		0.76*	0.21
	Intercept	−11.74*	2.81		6.24	4.64
26	ln I^{US}	0.06	0.16	33	2.17*	0.30
	ln R	−2.05*	0.60		1.46*	0.16
	Intercept	9.50*	2.30		−24.66*	4.42
27	ln I^{US}	1.76*	0.45	34	2.20*	0.46
	ln R	0.11	0.25		0.48*	0.21
	Intercept	−15.96*	6.14		−22.60*	6.52
28	ln I^{US}	0.32	0.18	35	2.50*	0.21
	ln R	1.18*	0.21		1.82*	0.34
	Intercept	5.08**	2.80		−28.98*	3.19
29	ln I^{US}	0.54	0.32	36	0.91	0.30
	ln R	−0.29*	0.08		1.34*	0.48
	Intercept	0.37	4.46		−4.67*	4.27
	ln I^{US}			37	2.14*	0.35
	ln R				1.28*	0.21
	Intercept				−23.76*	5.08

*Coefficient significant at the 0.05 level.

**Coefficient significant at the 0.10 level.

priate time structure even though such measurement has been proven to be the best measure among the uniform distribution functions. Using time structure, such as adaptive expectation, stock adjustment, geometric lag or polynominal distributed lag, might yield different results. Second, a choice between the rate of return to capital relative to the national average and to the highest rate in the alternative regions has been made in favor of the national average. This is primarily due to the fact that there are difficulties involved in the data derivation for all of the other states and in a bias involved in the choice of competitive states. When locational decisions are assumed to be made through a process of site elimination or through preference within the restricted geographic regions having the same investment climate, the rate of return to capital in a region relative to the highest rates in the alternative region might give different results than the national average adopted in this study.

For the resource-based industries such as SIC 26 and 29 where resource availability plays the major role, the relative rate of return variable seems to be less important in investment decisions. For industries SIC 23 and 25 where both are essentially labor-intensive and lower-skilled, international competition might provide some indication as to why the variation of regional investment did not respond to the rate of return to capital in Arkansas relative to the national rate of return.

IMPLICATION FOR POLICY ANALYSIS

The regression coefficients derived in this study provide direct estimates of elasticities. For the relative rate of return variable, the reliable elasticities estimated from the SUR procedure ranged from 0.40 in industry SIC 22 to 1.82 in industry SIC 35 (see Table 4). Thus a 1 percent increase in the rate of return in Arkansas would result in a rise of investment expenditures in Arkansas over a three-year period by 0.40 to 1.82 percent depending upon the industries, and *vice versa*.

TABLE 4
RELATIVE RATE OF RETURN TO CAPITAL ELASTICITIES[a]

	Coefficient of Elasticity	
SIC	SUR	OLS
22	0.40	0.76
24	0.91	0.87
28	1.18	1.07
32	0.76	0.71
33	1.46	1.31
34	0.48	(b)
35	1.82	1.58
36	1.34	1.82
37	1.28	1.33

[a] The elasticities on the industries SIC 20, 23, 25, 26, 27, and 29 are not tabulated due to their improper negative signs or insignificant coefficients.

[b] The coefficient is insignificant.

SUR - Seemingly Unrelated Regressions.

OLS - Ordinary Least Squares.

The above elasticities may be further incorporated into efforts to analyze the effects of policy measures on regional investment decisions by linking the relative rate of return variable to policy-sensitive determinants. Factors affecting relative rate of return to capital that could be directly or indirectly influenced by state or local government may include investment tax credits, corporate income taxes, property taxes, electrical rates, transportation costs, and unemployment compensation. Using an equation specified by Jones *et al.*, a function of the relative rate of return to capital can be expressed in the form:[8]

$$1n\,R_i = f\,(1n\,TAX,\ 1n\,PRO,\ 1n\,AGL_i)$$

where R_i = rate of return for industry i in Arkansas relative to the national rate of return of this industry;

TAX = corporate income tax in Arkansas relative to the corporate income tax in the nation;

PRO = productivity in Arkansas relative to the productivity in the nation; and

AGL_i = industrial agglomeration for industry i in Arkansas relative to the agglomeration of this industry in the nation.

Once this equation is estimated, the policy analysis may be undertaken in a form directed to the elaboration of policy-sensitive determinants. For example, consider a regression coefficient of -2.5 associated with 1n TAX for industry SIC 35. Assuming corporate income tax remained unchanged in other states, a one percent reduction of corporate income tax in Arkansas would raise investment expenditures for industry SIC 35 in Arkansas over a three-year period by 1.82 times 2.5 equal to 4.55. This suggests a very large effect on industries SIC 28, 33, 35, 36, and 37 and a smaller effect on industries SIC 22, 24, 32, and 34 because the relative rate of return elasticities for the former groups are sensitive while those for the larger groups are insensitive.

CONCLUSIONS

Although the model in this study does not produce sufficient detail for some types of policy analysis, the results derived in this study have provided information regarding elasticities for policymakers and others. The model has the further advantage of offering details about policy matters on state economic development through regional investment once a further extension of the relative rate of return function has been developed and estimated.

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[1] Chase Econometric Association, Inc., *Arkansas Public Information System: A Proposed Model Structure and Specification* (Bala Cynwlyd, Pennsylvania: Chase Econometric Association, Inc., 1977); Lynne E. Browne, Peter Miezhowski, and Richard F. Syron, "Regional Investment Patterns," *New England Economic Review* (July/August 1980), pp. 5-23; Joe H. Jones, William Cheney, and Sarah G. Breshears, *Arkansas Econometric Models* (Little Rock: Industrial Research and Extension Center, University of Arkansas, 1980).

[2] Robert F. Engle, "A Disequilibrium Model of Regional Investment," *Journal of Regional Science* 14 (1974), pp. 367-376.

[3] Engle, p. 368.

[4] Raymond Courbis, "A Regional-National Model for French Planning," *Regional Science and Urban Economics* 9 (1979), pp. 117-139;--, "Multi-Development: A General Theoretical Framework," *Modeling the Multiregion Economic System: Theory, Data, and Policy*, eds. F.G. Adams and N.J. Glickman (Lexington: Lexington Books, 1980), pp. 107-130; Robert T. Crow, "Output Determination and Investment Specification in Macro-econometric Models of Open Region," *Regional Science and Urban Economics* 9 (1979), pp. 141-158; and Engle, pp. 367-376.

[5] Because data on regional investment is not consistent and sufficient, the analysis is conducted on fifteen manufacturing industries: Food (SIC 20); Textiles (SIC 22); Apparel (SIC 23); Lumber and Wood (SIC 24); Furniture and Fixture (SIC 25); Paper (SIC 26); Printing and Publishing (SIC 27); Chemicals (SIC 28); Petroleum and Coal (SIC 29); Stone, Clay, and Glass (SIC 32); Primary Metals (SIC 33); Fabricated Metals (SIC 34); Nonelectrical Machinery (SIC 35); Electrical Machinery (SIC 36); and Transportation Equipment (SIC 37).

[6] For a detailed description of the perpetual inventory method, see U.S. Department of Labor, Bureau of Labor Statistics, *Capital Stock Estimates for Input-Output Industries: Methods and Data—Bulletin 2034* (Washington, D.C., 1979).

[7] It should be noted that capital stock estimates so obtained for the earlier years are less reliable than those for later years. Though the assumption might result in a biased measurement on capital stocks in earlier years, it does represent the most common approach taken by many studies. For example, see Lynne E. Browne, *et al.*, "Regional Investment Patterns," *New England Economic Review* (July/August 1980); Robert F. Engle, "A Disequilibrium Model of Regional Investment," *Journal of Regional Science* 14 (1974).

[8] Jones, pp. III c-1 - c-7.

THE CORPORATE MICROCOMPUTER MENACE

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INTRODUCTION

Corporate America exists in an environment marked by increased complexity and rapidity of change unprecedented in its history. In this environment, the very survival of the firm depends to a great extent on its ability to sense change through its information systems in order to facilitate the adaptive efforts required. With this increased emphasis on the need for information technology has come the rapid development of computer technology with a concomitant decrease in cost and increase in computing power for personal computers (PCs). This has resulted in a mass influx of PCs into the nation's corporate offices. According to the market research firm of International Data Corporation, approximately 1.9 million PCs were purchased in 1983 by big businesses for use by their executives and professionals. The number is expected to be even larger in 1984.

The effects of this proliferation of PCs are generally believed to be positive. The primary advantage provided by a personal computer is the speed at which it provides the corporate executive with information. However, this rapid growth is not without problems.

The purpose of this paper is (1) to review the problems caused by this rapid growth of PCs, (2) to propose the "real" problem concerning the use of PCs in organizations, and (3) to identify various solutions which should alleviate much of the corporate grief caused by the rapid growth in the use of PCs.

PROBLEM REVIEW

The problems (which are actual symptoms) most often found in the literature are:

1. Selection and implementation issue,
2. Lack of PC standardization within a firm, and
3. Data security.

Selection and Implementation Issue

In a recent survey, data processing (DP) managers were queried as to their attitudes on the use of PCs in their organizations.[1] A major area of concern identified in this survey was the selection and implementation of microcomputers in the organization. A number of respondents felt that users are likely to waste money on the wrong purchase or misuse the equipment once it is installed. Some typical responses from the DP managers concerning this waste were:

> Users tend to say "Just make it work" without a commitment to learn and understand—they want to be button pushers....
>
> They'll (i.e., the users) use the device as an expensive adding machine.
>
> It (the PC) will become a toy rather than a tool.

Because of the low costs of the PCs and the related software, the problem of inefficient use is not perceived as dramatic as the inefficient use of a mainframe computer system. However, the cost is just as real. Most PCs are purchased with departmental funds without considering the standardization procedures developed by the DP managers. If the PC does not provide the executive with the desired results in a short period of time, the PC will become an ornament in the manager's office. In other words, the low cost of the micros may often provide negative incentives for the executives to fully explore the machines' potentialities. The cost then becomes an opportunity cost, the foregone opportunity being one of what could have been accomplished if the PC selection/implementation process had been executed more carefully.

Lack of PC Standardization

With or without the blessing or knowledge of corporate management or data processing personnel, PCs are now appearing in almost every office. Many DP managers do not know how many PCs are currently used in their organizations, much less the brands in use. Opinions on how to control their acquisition and application are many and varied. In a recent survey by Advanced Office Concepts, it was found that most large companies do not know the actual number of PCs purchased, let alone the users or uses to which they are applied.[2]

There is a great deal of concern about the uncontrolled mix of hardware brands. This inconsistency of hardware brands has resulted in a diverse mixture of operating systems. This, in turn, has required an even greater mixture of software. The end result is that the corporate PC mix is a hodgepodge of various brands which are incompatible with each other. This problem can best be exemplified by an actual case.

In a recent article, Robert Rudkin spoke of the problems he encountered with the proliferation of PCs at Diamond Shamrock Corporation, a Dallas-based chemical and oil company.[3] Rudkin was in charge of office automation; his responsibility was to link 210 PCs into a network. Parts of the article are reproduced below:

> Computers from IBM, Wang, Apple, Tandy, and Datapoint proliferated in the past year at Diamond Shamrock when austerity programs prevented departments from adding people but allowed them to buy the productivity-boosting machines to get the job done. The computers and word processors, which cannot all communicate with one another, were bought with no master plan. Rudkin is now faced with the problem of 'trying to connect it all together and make it work'.
>
> Rudkin was not able to specify what brands of computers the departments could buy because each group wanted the freedom to automate in its own way. That generated some ill will among the company's data processing professionals. Now, however, department heads and data processing experts 'are starting to come together', Rudkin says. After departments using different software came up with conflicting results from the same data, they realized 'that they can't operate in a vacuum', he says. 'We tend to take the personal computer as gospel. We know now that's not always true'.

The above case in point is not an isolated occurrence; rather, the same thing is happening in numerous corporations throughout the nation. Lack of control in the purchase and use of PCs has produced a jungle without needed standardization or coordination of activities required for effective and efficient use of **all** computer resources. In the final analysis, it is the DP manager who is tasked with this responsibility.

Data Security

The PC has created four problems which fall under the main heading of data security. Each of them will be discussed in the following paragraphs.

In a recent article, it was pointed out that Management Information Systems (MIS) managers are concerned about the impact of personal computing on data integrity.[4] The MIS executives and large corporations face a great problem because of the central data access being provided through mainframe-microcomputer networks. This problem arises when the PC user cannot only inquire but also update the central data base. As a result of the proliferation of this type of access, MIS executives fear that they are in danger of losing control of the very function they are to oversee. These MIS executives are responsible for the integrity of the firms' data bases. So far, there are no studies available concerning the effects of data base manipulation. However, the *Data Decisions* survey mentioned earlier does point out that DP managers consider it to be a real problem as 40 percent of those surveyed expected difficulties in this area.

A second area of concern under the heading of data security deals with the control of the data. The problem here is one of inconsistent data. This may occur even when the integrity of the data base is maintained. This happens when managers create their own little files. Confusion follows because of the duplication of data. Because of the lack of organized data flow, this duplication will result in inconsistency. Managers may manipulate these files in any manner they see fit. As a result, many reports being prepared show conflicting results. Even if the managers do not deliberately manipulate the data, reports being prepared by departments using different software may provide conflicting results from the same data.

This problem can be exemplified by a statement made by Dick Gilberg, MIS manager for Lockheed, in a recent journal article.[5]

> At Lockheed, we control the company data up to the point that we put it out on a "query data base" which the user is supposed to read and not update. But from that point forward, once the user loads it down to his personal computer and starts manipulating it, we have no more control over the data.
>
> Thus one of our major concerns is that we are going to get GIGO, that is "garbage in, gospel out." Management and users alike tend to think that because it came from the computer, it's got to be right.

The problem with inconsistent data is that it is uncontrolled data. The danger is that a decision may be made based on data stored on a personal computer that may not agree with the official data stored on the corporate mainframe computer system.

A third problem area concerning data security is the area of "backup and recovery." When a manager has been creating and using his own files to make company decisions, a problem arises when he leaves the company. More specifically, the company either loses the file or loses the ability to utilize the file once the manager leaves.

Peter Herms of the prestigious accounting firm of Ernst & Whinney also recognizes an internal control problem created by the proliferation of PCs. Prior to the use of PCs, there was a built-in separation of duties. There were different people for initiating transactions, authorizing transactions, and processing transactions. Now, however, with the use of PCs, all three of these functions can be performed by the same person. One accounting clerk may have access to the entire general ledger package.

The final problem relating to data security involves the increased accessibility to sensitive data. For example, payroll information is very sensitive for obvious reasons. Only payroll personnel should be allowed to view such information. However, passwords and entrance codes may be easily learned by other employees who have access to the PCs. It would be a simple matter for them to gain access to the payroll files.

This increased exposure of sensitive data creates an even bigger problem when one considers the large number of users that now have access to the corporate data base. For example, the security of information concerning new product development or new target markets may be very important to a company's future success; the proliferation of PCs places this security in jeopardy.

WHAT IS THE REAL PROBLEM?

As already noted, the problems identified above are not problems at all. They are symptoms of a more basic problem. The dominant theme in the literature seems to be the **confusion in setting policies concerning personal computers**. Very few companies have pro-active policies to gain maximum company-wide benefits from their PCs. There is an overall lack of planning in the implementation of PCs as part of the overall information system. Because of this lack of planning, managers have put themselves in reactive positions of being "fire-fighters." The fires they are now fighting are the symptoms mentioned earlier (i.e., lack of PC standardization, threats to data security, and selection and implementation issue).

Corporate managers have taken a passive attitude towards PC policies. They feel that these policies are the responsibility of the MIS department. On the other hand, the DP manager is more concerned with the operation of the corporate mainframe computer. In many companies, the PCs are being purchased by the user department; the MIS department may not even be aware of the purchase. Even in those companies where requests for PCs must be channeled through the MIS department, the requests are usually given low priority. Rather than wait for the MIS department to provide the needed guidance, users simply purchase the small systems on their own. Each user department is "reinventing the wheel."

Microcomputers can be a wise investment for a company if the company utilizes intelligent planning and control. Without this foresight, however, the PCs may create more problems than they solve.

CONTROLLING THE PERSONAL COMPUTER PROBLEM

Several companies are currently using various strategies to plan and control the growth of PCs in their organizations. For example, Gardner noted the procurement procedure adopted by New York's Manhatten Bank.[6] This firm has appointed a three-man microcomputer team. The team's purpose is to provide for an orderly growth of PCs and ensure their proper use. In achieving this purpose, the team performs the following functions:

1. Formulates fundamental policies and strategies for the use of PCs,
2. Heads up an internal user group, and
3. Provides support services and establishes training programs.

Sweet provided another example.[7] Frank Sweet is the Data Base Administrator for Charter Company, a Jacksonville, Florida-based Fortune 100 company. In this company, the MIS department has developed an in-house PC consulting service center. The idea is based on the assumption that the in-house DP staff can provide PC support more economically than outside vendors.

The MIS department agrees to buy all PC hardware (and software if not developed in-house) from local vendors. They are acting as purchasing agents for the vendors. The vendors provide the equipment and related materials at a substantial cash discount, but they do not provide any support after the sale. All support is provided by the in-house DP staff. The in-house staff provides the following functions:

1. A training room where potential users can experiment with the PCs. Thus, the users can decide if they really want or need a PC prior to actual acquisition,
2. Software and hardware reviews and recommendations, and
3. An on-hand troubleshooting staff to help with problems.

The primary advantage of this method is that the MIS department is involved from the very beginning when users first become interested in PCs. Thus, users and DP personnel develop good working relationships; and problems are less likely to develop.

While there are many examples of corporate policies which deal with the PC problem, the two examples show that corporations are now coming to the realization that corporate-wide policies are needed to ensure maximum benefits from their personal computers.

Richard Levitz, a principal in an international consulting firm, addresses the idea of developing a corporate strategy in a recent article.[8] He provides some general guidelines which include several important points concerning a microcomputer strategy.

According to Levitz, the first step is to determine if automation is needed. To do so, he recommends that a study team made up of experienced professionals should examine the areas involved. this is an important step in which the majority of companies are currently deficient. The team should characterize each potential application in terms of both quantitative and qualitative aspects. A determination should be made concerning whether any of the desired applications already exist in the company. If they exist, there may be no need for automation in the particular user department in question. In this first step, the study team takes an inventory of current PCs already available in the firm and examines the nature of their use.

Even though Levitz does not specifically provide for user involvement in this first step, it is apparent that **user involvement is imperative**. Although users will not be involved in a microcomputer strategy to the extent that they would in the design of a large system, their input, involvement, and cooperation is invaluable in determining the need for automation.

Once a need is determined, the study team turns its attention to hardware selection. The hardware selection criteria suggested by Levitz are reproduced in Figure 1.

Once the hardware recommendations have been made, but before implementation, a cost-benefit analysis must be performed. The benefits will include both tangible and intangible benefits. Some of these benefits include cost savings, timeliness, improved information, and the increased support for decision making. Costs would include the easily identifiable costs such as lost productivity during training and any new company policies which might be required because of the microcomputer strategy.

If the benefits outweigh the costs, the

FIGURE 1
HARDWARE SELECTION CRITERIA

Selection Criteria	Measurement Criteria
1. Technology	Hardware architecture innovation, expandability, and flexibility.
2. Hardware performance	Processor speed.
3. Functional capability/device support	Devices supported and the functional capability.
4. System software support	Availability of machine-independent operating systems; language support.
5. Software availability	Availability of relevant software packages.
6. Communications support	Availability of software for communication with company mainframe and other micros.
7. Business and systems objective support	Compatibility with business and systems plans.
8. Cost	List price of sample configuration

Source: Levitz, Richard, "How to Control Microcomputer Power so all Organizational Levels Benefit," *Management Review*, February, 1984, pp. 22-26.

system is purchased and an implementation plan should be used to ensure that:

1. The PC is properly installed,
2. Managers fully understand the powers and limitations of the new system,
3. The PC is integrated with the existing computer system, and
4. Technical support is provided.
5. Systems are upgraded as needed.

Whether a company uses an approach like Levitz describes above or develops a unique PC strategy of its own is not important. What is important is that a company develop a microcomputer strategy to ensure that system design, implementation, and use are controlled within the overall corporate MIS scheme. If the proliferation of microcomputers and their applications continue into the foreseeable future, a corporate-wide policy to control their purchase, implementation, and use must be implemented in order to obtain maximum benefit and to prevent the aforementioned problems from arising.

SUMMARY AND CONCLUSIONS

The purpose of this paper was to identify the problems due to the proliferation of personal computers in corporate America. The problems most often identified by managers were those relating to selection and implementation, lack of PC standardization within the organization, and threats to data security. These problems are only symptoms of the central problem—the absence of a consistent corporate microcomputer policy or strategy.

These same problems faced managers when mainframe computer systems were introduced in the 1960's. They solved their problems by developing company-wide systems design and implementation policies. Many companies today have come to realize the need for similar corporate-wide microcomputer policies. The maximum potential of these PCs can be realized only when such policies are implemented.

The problems of wastes, costs, and lack of standardization can be virtually eliminated if such policies are used. Because of the use of the corporate data base, however, certain problems relating to data security will probably always be present. Even so, the consistency brought about by corporate-wide microcomputer policies will allow managers to more tightly control the sensitive data bases. Thus, data security problems should be greatly reduced.

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[1] Data Decisions, "Micros at Big Firms: A Survey," *Datamation*, November 1983, pp. 160-174.

[2] Kathleen Carey and Amy Wohl, "We're Not Really Sure How Many We Have," *Datamation*, November 1982, pp. 106-109.

[3] Robert Rudkin, "Computer Shock Hits the Office," *Business Week*, August 8 1983, pp. 46-49.

[4] "The Micro Challenge to Data Security," *Infosystems*, April 1984, pp. 32-33.

[5] Ibid.

[6] David Gardner, "Computer Users Have Hundreds of Data Bases to Choose From," *Dun's Business Review*, April 1983, p. 100.

[7] Frank Sweet, "The PCs Impact on Data-Base," *Datamation*, February 1984, pp. 241-244.

[8] Richard Levitz, "How to Control Microcomputer Power so all Organizational Levels Benefit," *Management Review*, February 1984, pp. 22-26.

THE IMPACT OF A TEN PERCENT USURY CEILING: THE ARKANSAS CASE

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INTRODUCTION

The National Commission on Consumer Finance (1972) concluded that restrictive usury ceilings on consumer loans reduced the loan supply with credit-worthy consumers being rationed out of the market. Numerous authors before and since this conclusion have examined the theoretical and actual effects of such ceilings on the consumer credit market. Many of these investigations have concentrated on the non-mortgage component of the market. In general, the studies either have treated consumer credit as a homogenous good or have examined the reaction of particular types of financial institutions.

Very few studies have considered whether usury ceilings alter the composition of consumer credit between financial institutions and other sources of credit. This distinction is interesting since the National Commission on Consumer Finance and several authors have suggested that in the presence of a below market loan-rate ceiling a retail merchandiser may continue to extend credit and recover part or all of his credit operation losses by raising cash prices to all customers.[1]

The major purpose here is to examine the impact of a usury ceiling on the amount and share of non-mortgage consumer credit obtained at the point of sale of a good and to ascertain whether this impact differs by risk. In addition, the effect of such a ceiling on total non-mortgage debt is examined.

The propositions to be tested are presented along with a review of some major consumer credit studies under **Theoretical Framework and Prior Studies**. The methodology is discussed under **Data and Methodology**. The analysis of data and findings are contained under **Empirical Results** and **Conclusions**, respectively.

THEORETICAL FRAMEWORK AND PRIOR STUDIES

A basic premise of economic theory is that under conditions of either pure or monopolistic competition a price ceiling will, if set sufficiently low, lead to supply curtailments. In the application of this premise to the consumer credit market, the relative riskiness of the borrowers must be considered. Models incorporating this risk aspect have been put forth by Goudzwaard, Blitz and Long, and Kawaja among others.[2] Greer has proposed a slightly more complex model of the consumer credit market.[3] These models generally suggest that in the presence of a usury ceiling relatively high risk borrowers will suffer the largest credit supply curtailment. This hypothesis has been tested at various levels of aggregation.

One of the more comprehensive studies of the impact of usury ceilings on consumer finance companies was done by Greer using data on companies in 48 states.[4] An analysis involving only states with usury ceilings below the national median revealed a significantly positive relationship between the rate ceiling variable and both the dollar amount and the number of loans extended. The opposite relationship was found among high usury ceiling states. Overall, as noted by Greer, his results indicated a positive association between risk acceptance and height of usury ceilings for consumer finance companies. Similar conclusions regarding usury ceilings and risk acceptance were reported in other studies by Greer and by Goudzwaard, Shay, Kawaja and Benston.[5] In essence, these studies suggested that relatively high risk consumers suffer the largest reductions in finance company credit availability because of a usury ceiling.

While the above analyses focused on consumer finance companies and the risk acceptance aspect, others have studied broader components of the market for consumer credit. The conclusions of these studies have shown considerable variation. For instance, Shay concluded load rate ceilings had no significant impact on the dollar amount of loans per family but did influence the number of loans per 1000 families.[6] However, both Greer and Johnson and Sullivan reached the opposite conclusion regarding the dollar amount of loans.[7]

With regard to total credit availability (i.e. credit from both financial institutions and retail merchandisers) Shay found usury ceilings had a significant and positive effect on the number of loans in the new automobile credit market but had no influence on the dollar amount of loans in the other consumer goods credit market.[8] These results are consistent with the findings of Villegas and Nagata and Greer, respectively.[9]

In a more recent study Peterson and Falls, using t tests, reported that the amount of outstanding consumer installment debt per family in Arkansas (a state with a 10 percent usury ceiling at the time of study) was not significantly lower relative to families in three states with higher usury ceilings.[10] Their analysis was performed for several family income and risk groups. Since the loan rate ceiling had a significant influence on only one risk group, no attempt was made to ascertain whether the effect differed by risk. Research conclusions by Dunkelberg and DeMagistris on Arkansas agreed with those results.[11]

From the above review of prior work it seems well established that relatively low usury ceilings lead some suppliers of consumer credit to reduce credit availability, especially to relatively high risk consumers. The influence of such ceilings on the composition of credit between that extended by financial institutions (generally referred to as cash credit) and retail merchandisers is less established. Since these retailers generally provide credit only in connection with the sale of merchandise their response to loan rate ceilings may be significantly different from that of financial institutions.

Numerous authors (e.g., Lynch, Lynch and Harden, Sauter and Walker, and Wheatley and Gordon) have found considerable empirical evidence which indicated that retail merchandisers raise the cash prices of goods in response to a below market loan rate ceiling.[12] Given this potential source of revenues, which financial institutions do not have, these retailers may be willing to offer credit to those high risk borrowers forced out of the cash market by a usury ceiling. In this situation cash purchasers of goods and better credit risk borrowers subsidize the credit extensions made to relatively high risk borrowers. This notion has been put forth by the National Commission on Consumer Finance (1972), Nagata and Greer, Lynch, Sauter and Walker, Williams and others.[13] This potential response allows the possibility that a usury ceiling may not reduce total credit availability even to high risk borrowers. Such a ceiling may merely cause a shift away from cash credit and toward point of sale credit. This suggests the hypothesis that in states with relatively low usury ceilings point of sale credit should account for a larger portion of total debt.

Furthermore this ceiling effect should be greater for relatively high risk consumers.

Some evidence concerning the first hypothesis was provided by Peterson and Falls.[14] Using the same methodology specified above these authors concluded the ratio of point of sale credit to total debt per family was significantly greater in Arkansas relative to the identical non-Arkansas group previously mentioned. There was a tendency for the numerical magnitude of the gap in these ratios to widen with increasing risk. However, it was not ascertained whether this gap was statistically greater for high risk than for low risk consumers (i.e. whether the ceiling impact depended upon risk).

DATA AND METHODOLOGY

The data used to test the above hypotheses were obtained from a study conducted by the Credit Research Center at Purdue University. This data consists of 3,572 personal interviews conducted during early 1979 in four local credit markets. These markets were: Little Rock/North Little Rock, Arkansas; Racine/Kenosha, Wisconsin; Waukegan/North Chicago, Illinois; and Lake Charles, Louisiana.

These four markets had similar demographic and economic characteristics but differed in terms of credit regulation. At the time of the interviews the Arkansas usury ceiling was an annual percentage rate (APR) of 10 percent on both revolving and closed end consumer credit sales. Thus, this state provides an excellent case study of the effects of usury ceilings on the consumer credit market. In general, the Arkansas and Wisconsin markets had lower loan rate ceilings than those in Illinois and Louisiana.[15] Wisconsin and Louisiana placed more restrictions on creditor remedies than did the other two states.[16] Thus, by pooling the data, the effect of rate ceilings or creditor remedies may be analyzed.

A regression approach to analysis of variance is employed to test the above hypotheses. Hence a stepwise procedure is applied to the following regression equation.

$$Y_i = b_o + b_1RRC_i + b_2LR_i + b_3HR_i + b_4LRC_i + b_5HRC_i + b_6X_i + U_i \qquad (1)$$

The dollar denominated dependent variables are measures of total non-mortgage consumer installment debt outstanding (TDEBT), the quantity of outstanding debt originated by retail merchandisers (RD), and the sum of RD and credit card debt (POS). This last variable is studied since consumers may obtain credit at the point of sale either directly from the retailer or on a credit card. Other dependent variables are the ratios of RD to TDEBT (RRD) and POS to TDEBT (RPT). These ratios are included to investigate the impact of loan rate ceilings on the shares of total debt. All measures are on a per family basis.

The variable RRC is equal to one in Arkansas and zero otherwise. Thus it indicates the presence of a restrictive loan rate ceiling. This grouping is used instead of comparing Wisconsin and Arkansas to Illinois and Louisiana because average loan rates in Wisconsin often approximated rates on similar contracts in Illinois.

The two risk measures are derived from a major bank's credit scoring model. High (low) risk consumers are defined as those with a credit score of less (greater) than the mean score minus (plus) one half of the standard deviation.[17] The predictor LR is one for low risk and zero otherwise. Similarly, HR is one for high risk and zero otherwise.

The interaction terms LRC and HRC are, respectively, the product of RRC times LR and HR.[18] These variables are included to ascertain whether the usury ceiling impact depended upon risk.

In addition to the above predictors each analysis also controls for restrictions on

TABLE 1
ANALYSIS OF VARIANCE

Source of Variation of Dependent Variable	Dependent Variables RPT F Ratio	 RRD F Ratio	 POS F Ratio	 RD F Ratio	 TDEBT F Ratio
Main Effects (Rate Ceiling and Risk)	34.69**	8.63**	.83	.82	7.14**
Rate Ceiling Group	1.19	10.16**	.24	.82	.14
Risk Group	51.40**	7.28**	1.12	.92	10.68**
Rate Ceiling/Risk Interaction Group	2.52*	5.38**	.66	1.04	.88

Note: The F ratios, for all but the interaction group, are statistics for the test that the group(s) is (are) significant after controlling for all but interaction effects. For the interaction group the F ratio is a test for this group after adjusting for all other impacts. * Significant at the 10% level. ** Significant at the 5% level.

creditor remedies and, since the data is on a family basis, demographic and economic characteristics of the families as well as the family head's attitude toward debt. The additional economic traits accounted for are family income and assets. The demographic attributes adjusted for are education of the family head, age of the head, marital status and presence of children. Information on the latter three demographics are combined to form a life cycle variable. All of these family characteristics are the usual demand elements accounted for in consumer credit studies. Each of these additional factors represented by a set of binary variables. The variable X in equation (1) represents these other determinants. Their coefficients are not reported but are available from the author on request.

EMPIRICAL RESULTS

The results of the analysis of variance for all equations are presented in Table 1. The interaction group is significant in the RPT and RRD equations. This suggests that for these two variables the influence of the Arkansas usury ceiling is a function of risk. Thus, for both equations the effect of the ceiling for low risk consumers is the sum of RRC and LRC. Likewise, the sum of the coefficients of RRC and HRC gives the consequence for high risk consumers. These sums along with the corresponding standard errors are reported in Table 2.

In the RPT equation the usury ceiling has the greatest impact, as expected, on high risk consumers. The result indicates high risk Arkansas consumers have a significantly larger share of point of sale debt than the same risk class consumers in the other states. This difference is approximately 10.50 percentage points. The increased use of POS debt presumably arises because these consumers are forced out of the cash credit market and thus must increase their reliance on this other form of debt. This is consistent with the earlier analyses by Peterson and Falls.[19]

As expected, the ceiling has no significant effect for low risk consumers. However the sign of the coefficient implies that these consumers in Arkansas have a smaller share of POS debt than do the same risk class consumers in other states. These consumers may still be able to obtain cash credit. This result along with the

TABLE 2
RATE CEILING EFFECTS FOR RPT AND RRD

Risk Class	Rate Ceiling Effect Dependent Variable RPT	 RRD
Low	−.0299	−.0167
	(.0569)	(.030)
High	.1048**	.1017**
	(.045)	(.0242)

Note: Figures in parenthesis are standard errors. ** Significant at the 5% level.

former outcome for this equation suggests the impact of the usury ceiling falls much more on high risk than low risk consumers.

Both risk variables in the RPT equation are highly significant and carry the expected sign (Table 3). The coefficient of LR indicates that low risk consumers have approximately 23 percentage points less point-of-sale debt in their credit portfolio than middle risk consumers. Under the same conditions high risk individuals carry about 19 percentage points more POS debt than this middle risk group.

The outcomes of the RRD equation provide further evidence of a shift in the composition of consumer credit. The results shown in Table 2 again imply that the usury ceiling has a significant influence only on high risk consumers. Arkansas consumers in this class have 10.17 percentage points more retailer originated debt in their portfolios than their counterparts in states with less restrictive usury ceilings.

Only the high risk binary variable is significant in the RRD equation. The coefficient denotes that this risk class consumer has approximately 3.5 percentage points more RD debt than middle risk consumers (Table 3).

The results reported in Table 1 for the dollar denominated dependent variables suggest that the influence of the Arkansas loan rate ceiling does not depend upon the risk class of the consumer; therefore the ceiling's impact is given by the coefficient of RRC. The RRC coefficient is not significantly different from zero in any of these latter three (Table 3). These results imply that Arkansas consumers do not suffer a reduction in credit availability either in total or from point of sale sources. In fact the sign of the RRC coefficient in the POS and RD equations suggest the opposite impact. These results along with the negative coefficient on RRC in the TDEBT equation are consistent with the notion that while total credit availability is reduced point of sale availability is increased. These outcomes concur with findings reported by Dunkelberg and DeMagistris and Peterson and Falls.[20]

CONCLUSIONS

In general the above results suggest that usury ceilings do not necessarily reduce total credit availability but may merely alter its composition. This change

TABLE 3
REGRESSION RESULTS

	Dependent Variables				
Independent Variables	RPT	RRD	POS	RD	TDEBT
RRC	−.0043	.0528**	46.418	54.391	−88.318
	(.0511)	(.0273)	(95.43)	(76.530)	(233.761)
LR	−.2343**	−.0083	−117.734	−70.433	1,108.397**
	(.0378)	(.0202)	(97.930)	(78.528)	(239.863)
HR	.1798**	.0347**	101.592	47.517	−284.163
	(.0332)	(.0177)	(83.598)	(67.035)	(204.759)
LRC	−.0256	−.0695*	–	–	–
	(.0709)	(.0380)			
HRC	.1091*	.0489	–	–	–
	(.0625)	(.0335)			
Equation Standard Error	.412	.220	1,187.618	952.294	2,908.872
Equation F Ratio	8.665**	4.974**	2.568**	1.311	7.003**

Note: Figures in parenthesis are standard errors. * Significant at the 10% level. ** Significant at the 5% level.

in composition is a shift away from cash credit and towards point of sale credit for high risk borrowers. The credit extensions to these borrowers are probably subsidized by cash purchasers of goods and lower credit risk borrowers. Since it is probably difficult for more consumers to evaluate (in terms of a higher cash price for goods) any additional cost to them of this change in composition and total credit availability remains unchanged, it is not surprising that many are opposed to increases in state usury ceilings.

These findings also suggest that market participants find alternatives when government regulations interfere with the operation of one component of a market. Thus the old adage that "markets work" seems appropriate to the consumer credit market.

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[1] This is similar to the time-price doctrine.

[2] Maurice B. Goudzwaard, "Price Ceilings and Credit Rationing," *Journal of Finance* (March 1968): 117-185; Rudolph D. Blitz and Milliard F. Long, "The Economics of Usury Regulation," *Journal of Political Economy* (December 1965): 608-619; Michael Kawaja, "The Economic Effect of Regulation: A Case Study of the Consumer Finance Industry," *The Southern Economic Journal* (January 1969): 231-238.

[3] Douglas F. Greer, "Rate Ceilings, Market Structure and the Supply of Finance Company Personal Loans," *Journal of Finance* (December 1974): 1368-1382.

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[6] Robert P. Shay, "The Impact of State Legal Rate Ceilings Upon Availability and Price of Consumer Installment Credit," The National Commission on Consumer Finance, Technical Studies 4 (December 1972): 387-424.

[7] Greer, "Rate Ceilings, Market Structure"; Robert W. Johnson and A. Charlene Sulivan, "Restructive Effects of Rate Ceilings on Consumer Choice: The Massachusetts Experience," Working Paper 35, Credit Research Center (Krannert Graduate School of Management, Purdue University, 1980).

[8] Shay, "The Impact of State Legal Rate Ceilings."

[9] Daniel J. Villegas, "An Analysis of the Impact of Interest Rate Ceilings," *Journal of Finance* (September 1982): 941-954; Ernest A. Nagata and Douglas F. Greer, "An Econometric Analysis of the Other Consumer Goods Credit Market," The National Commission on Consumer Finance, Technical Studies 4 (December 1972): 273-334.

[10] Richard L. Peterson and Gregory A. Falls, "Impact of a Ten Percent Usury Ceiling: Empirical Evidence," Working Paper 40, Credit Research Center (Krannert Graduate School of Management, Purdue University, 1981).

[11] William C. Dunkelbery and Robin Wemagistris, "Measuring the Impact of Credit Regulation on Consumers," Unpublished manuscript (Purdue University, December, 1980).

[12] This assumes that retail merchandisers can to some degree control these cash prices. In Gene C. Lynch, "Consumer Credit at Ten Percent Simple: The Arkansas Case," *University of Illinois Law Review* (Winter 1968): 592-620, the author found that cash prices on appliances in Little Rock, Arkansas were about 4.5% higher than on identical items in similar cities. He attributed this primarily to the Arkansas usury ceiling. Also in Gene C. Lynch and William F. Hardin, "The 1974 Arkansas Region Consumer Price Survey," Financial Management Association, 1974. (Mimeographed.) the authors reported similar results. Moreover, in John J. Wheathey and Guy G. Gordon, "Regulating the Price of Consumer Credit," *Journal of Marketing* (October 1971): 21-28; and in Richard F. Sauter and Orville C. Walker Jr., "Retailers' Reactions to Interest Limitation Laws-Additional Evidence," *Journal of Marketing* (April 1972): 58-61, the authors revealed that a large percentage of retailers had or would raise cash prices in response to a decrease in their state usury ceilings.

[13] In Jan Robert Williams, "The Credit Deficiency of Retailers in Arkansas," *Arkansas Business and Economic Review* (August 1970): 14-19, the author estimated the credit revenue deficiency of Arkansas retailers at approximately 5% of credit sales. He arrived at this figure assuming an 8% cost of capital. In addition several other studies have shown that retailers just break even in credit operations for example. National Retail Merchants Association, *Economic Characteristics of Department Store Credit* (New York: National Retail Merchants Association, 1969).

[14] Peterson and Falls, "Impact of a Ten Percent Usury Ceiling."

[15] The enactment of Amendment 60 to the Arkansas constitution in November 1982 and subsequent ruling by the state supreme court in July 1983 established a floating ceiling of five percentage points above the

Fed's discount rate to a maximum of 17%. The Illinois ceilings were abolished in 1981. The state of Wisconsin removed most usury ceilings for a three year period beginning in November 1984. The Louisiana ceilings remain basically unchanged.

[16] Creditor remedies are actions taken by a creditor when a consumer defaults on a loan (e.g. garnishment of wages).

[17] The mean credit score was approximately 205. The standard deviation was about 16. Evidence from analyses not discussed here indicated the results are not sensitive to this specification.

[18] The presence of these interaction terms introduce some multicollinearity. The simple correlations between these terms and their respective variables are generally less than .55. While these correlations are not perfect indicators they at least reveal some information about the extent of the problem.

[19] Peterson and Falls, "Impact of a Ten Percent Usury Ceiling."

[20] William C. Dunkelbery and Robin DeMagistris, "Measuring the Impact of Credit Regulation"; and Peterson and Falls, "Impact of a Ten Percent Usury Ceiling."

THE ECONOMIC IMPACTS OF HIGHER EDUCATION IN ARKANSAS

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INTRODUCTION

Since Harvard was established in 1636 there has been a recognizable interdependence between the economy and higher education. Changes in the economy at both national and local levels affect the enrollments, curricula, and the financial well-being of colleges and universities. Higher education contributes to the growth of human resources and provides services to business and industry. By their presence alone, institutions of higher education are important economic as well as social and cultural assets of the state.

Colleges and universities channel resources into the state which otherwise might be invested elsewhere. Students and institutions receive various forms of student aid, tax-supported loans and scholarships, alumni contributions, and corporate and philanthropic gifts, grants and endowments, any of which may originate all, or in part, from outside the state. Institutions of higher education disburse these funds within the state as salaries, tax revenues, and payments for goods and services from area businesses.

Colleges and universities also provide services and facilities for businesses, as well as for agriculture and government. Their faculties serve as researchers, consultants, testers, trainers, advisors, board members, staff for continuing education programs, and seminar and conference leaders. They also benefit society by offering improved understanding of technical, medical, social, and cultural events. Colleges and universities produce jobs, consume goods and services, build and own property, and deposit and invest money in the state.

Many studies have been and are being done nationwide to measure, both in quantitative and qualitative terms, the impact of individual institutions on the economies of their respective communities.[1] In Arkansas, "The Economic Impact of the University on the Fayetteville Community" described the effect the University of Arkansas had on the city of Fayetteville.[2] Another Arkansas study, "Higher Education and Arkansas: The Future of the State and Her People" explored economic and quality of life incentives for pursuing higher education in Arkansas.[3]

Up to that time little other data were available to assess the contribution made to Arkansas' well-being by its institutions of higher learning. The availability of such data can be of substantial value to college and university officials, and to those persons who make decisions in developing policies having to do with support for higher education in Arkansas.

The goal of this study was to address this need for objective and reliable information. In particular, this study sought to answer the following questions as a measure of the impact of higher education in the state.

1. What do Arkansas' institutions of higher education contribute directly or indirectly to the economic well-being of the state in terms of payrolls generated, purchases of goods and services, capital assets acquired, taxes, and other contributions?

2. What is the expected economic rate of return per dollar of funds invested in higher education in Arkansas?

The objective of this study was to gather and present such information as was available to add to the current body of knowledge concerning these questions critical to the future of higher education in Arkansas. *The Economic Impact of Higher Education in Arkansas* investigated the economic assets—business, government, and individual—related to Arkansas' four-year institutions of higher learning based on the model developed by Caffrey and Isaacs for the American Council on Education.[4]

FINDINGS

Before these benefits are presented it should be noted that the findings measured gross, rather than net, monetary benefits. It would be tempting to try to compare revenues with expenditures to see if the state came up short or was ahead. But as Caffrey and Isaacs noted, this would be a misuse of the models which were designed only to estimate certain, quantitative, impacts.[5] Attempting to portray these impacts on a ledger would give the illusion that all benefits were quantifiable in like terms and, thus, that a net balance could be determined. Such a portrayal would ignore those important qualitative intangibles which escape quantitative measurement. Impacts are shown in Table 1.

Business volume related to nine major Arkansas universities was estimated to be over $940 million in fiscal year 1983, which represented three percent of the state's total business volume that year. Of this amount nearly $400 million was contributed by the expenditures of these institutions while over $240 million was attributed to purchases within the state by businesses in support of these expenditures. Business volume stimulated in Arkansas by the expenditure of university-related income by individuals other than faculty, staff, or students amounted to almost $300 million. For illustrative purposes, it could be stated that this impact amounted to over $20,000 of annual business generated per full-time student.

Arkansas universities had impacts also on the property and inventories which were necessary to generate this business volume. A total of more than $175 million in business property and inventory was related to the universities in this study. That figure represented nine percent of the total business property and inventory in the state. For each full-time student, nearly $4,000 worth of business property and inventory resulted from college-related influences.

The expansion of the bank-credit base

TABLE 1
SUMMARY OF UNIVERSITY-RELATED IMPACTS

Source	Amount	Per Student FTE
* Business Volume	$947,671,875	$20,280
* Business Property	$178,177,524	$3,757
* Bank Credit Base	$87,099,435	$1,864
* College-Generated Volume	$20,813,034	$445
* Government Revenues	$4,571,354	$98
* Jobs	36,831	0.8**
* Personal Income	$404,152,662	$8,649
* Durable Goods	$18,591,024	$398

**For every 10 students, 8 jobs were created.

in Arkansas due to university-related deposits was over $85 million. Almost $21 million of business volume was generated by campus food services and bookstores.

The share of government revenues attributed to the presence of Arkansas universities was over $4.5 million which was a very low estimate to the unavailability of some information needed for the model measuring this impact. Still, for each full-time student, almost $100 was collected in the form of taxes or other revenues by the state.

Over 36,000 jobs and $400 million in personal income were attributed to the presence of Arkansas universities. In addition, over $18 million worth of durable goods were purchased with income from college-related jobs and business activities. For every ten students, eight jobs were created. Each student created nearly $9,000 in additional income for local individuals and purchased almost $400 worth of durable goods.

For every dollar of university-related expenditures as institutions, by faculty, staff, students, and visitors, an estimated $2.37 of business volume was created in the state. In other words, the multiplier effect of university-related expenditures in Arkansas was estimated to be 2.37 for 1982-83. There were 36,831 jobs attributable to the presence of the universities in Arkansas. Of these, 8,843 were direct employees and 27,988 were induced by university-related expenditures, which yielded an employment multiplier of 4.16. For each person employed directly by the universities, three more persons were employed as a result of university-related expenditures.

Today personal income generated from jobs attributable, directly and indirectly, to Arkansas' universities amounted to $404,152,662. Of that figure, indirect income was $263,891,098 while direct income was $140,261,564. The income multiplier effect was 2.88. For each dollar expended by the universities $2.88 is generated in personal income (Table 2).

TABLE 2
SUMMARY OF ECONOMIC MULTIPLIERS

* Business Volume	2.37
* Employment	4.16
* Personal Income	2.88

The information used in calculating the above figures came from a variety of sources. In the ensuing text, specific sources will be given where they are needed for explanatory purposes. Otherwise, the primary sources are the Arkansas Department of Higher Education; the Institutional Research and Extension Center at the University of Arkansas, Little Rock (UALR); the Arkansas Industrial Development Commission; the Division of Legislative Audit of the Legislative Joint Auditing Committee; the UALR Payroll Department; the Arkansas Department of Finance and Administration; the Arkansas Department of Education; and the Arkansas Assessment Coordination Commission. Additional references, such as other impact studies and government documents, are listed in the bibliography.

Business Impact

This section measured the volume of in-state expenditures by the universities along with the local expenditures by university faculty, staff, and students. Their salaries and wages were spent in Arkansas for rent, mortgage payments, goods and services, savings, necessities, and other costs. In addition, the universities attracted out-of-state visitors to various functions who spent money locally. These expenditures had an impact on municipalities as well as on the state.

Another major impact was the value of business property, real-estate, and inventory in Arkansas attributable to the presence of the universities. A third impact was the expansion of banks' credit bases due to deposits from the universities, faculty, staff, and students. Also, the universities provided services such as bookstores and food services for their students (Table 3).

Each of these effects is listed. The multiplier effect has increased the statewide impact. That is, when a university purchased desks and chairs for a classroom or office, a salesperson earned a commission, the manufacturer sold a product; and indirectly, the suppliers of the materials used in the manufacture of the furniture realized a profit from their investment.

Business Volume - Table 4

Business volume related to selected Arkansas universities was estimated to be over $940 million in fiscal 1983, three percent of the state's total business volume of approximately $31 billion that year. Within counties, the impact ranged from lows of 1.5 and 4 percent for UALR and UAPB to highs of 16 to 19 percent for UAM, ASUJ, UAF, and UCA. The others hovered around the ten percent range. Little Rock and Pine Bluff, of course, were in the two most populous counties in Arkansas. The businesses there do not necessarily depend on local universities for their existence. In Monticello, Jonesboro, Fayetteville, and Conway the local universities have much larger impacts relative to community activities, and the businesses are much more dependent on the presence of the schools in these locales. This impact amounted to $20,280 of annual business generated per full-time student.

TABLE 3
INSTITUTIONAL NAMES AND ABBREVIATIONS

State Four-Year	
Arkansas State University - Jonesboro	ASUJ
Arkansas Tech University	ATU
Henderson State University	HSU
Southern Arkansas University - Magnolia	SAUM
University of Arkansas - Fayetteville	UAF
University of Arkansas at Little Rock	UALR
University of Arkansas at Monticello	UAM
University of Arkansas at Pine Bluff	UAPB
University of Central Arkansas	UCA

College-related local expenditures included local expenditures by the college, faculty and staff, students, and visitors. Local expenditures by the college included ninety percent of the total college expenditures in Arkansas, excluding gross compensation to faculty, staff, and students, internal account transfers and payments, and taxes and other payments to governments. The ninety percent figure was an estimate based on an Arkansas preference buying law which requires state institutions to buy in-state where state contracts have been let. The figure was probably low given that 0.95 was used in a Rhode Island study and in a California State University (CSU) study.[6] Local expenditures by faculty, staff, and students included local rental housing where applicable and local nonhousing expenditures.[7] Local expenditures by visitors were conservatively estimated as one percent of the sum of local expenditures by faculty, staff, and students—an approach drawn from the CSU study.[8]

Purchases from local sources by local businesses in support of their college-related business volume were computed as the product of a coefficient representing the degree to which local businesses purchased goods and services from local sources, 0.62, and college-related local expenditures, defined before. This coefficient was used in the Rhode Island study and, in turn, in the CSU study; and it was felt to be conservative given the statewide nature of both studies.[9]

Local business volume stimulated by the expenditures of college-related income by local individuals, other than faculty, staff, or students, was the product of a coefficient representing the degree to which individual income received from local business activity was spent and respent locally, 0.75, and college-related local expenditures. This figure was used in the CSU study.[10] It was also within the range of 0.60 to 0.80 suggested by Caffrey and Isaacs.[11] Booth and Jarrett used a smaller figure, 0.525, but it must be remembered that Rhode Island is a relatively tiny state and out-of-state spending by individuals is much more likely there.[12]

Business Property - Table 5

Arkansas' universities had impacts not only upon business volume, but also on the property and inventories necessary to generate such volume. **The more than $175 million in business property and inventory related to the nine universities in this study represented nine percent of the almost $2 billion in total property and inventory in the state.** For each full-time student who attended one of these universities, $3,757 worth of business property and inventory resulted from college-related influences.

The value of local business real property committed to college-related business was the product of two ratios. The first ratio was college-related local business volume to local business volume. The second ratio was the assessed valuation of local business real property to the local ratio of assessed value to market value of taxable real property.

The value of local business inventory committed to college-related business was the product of the inventory-to-business volume ratio, 0.12, and college-related local business volume, defined earlier. The value of 0.12 was suggested by Caffrey and Isaacs.[13] This figure was also used by Booth and Jarrett as calculated by them and was close to the 0.1017 figure used by Mason.[14]

Bank Credit - Table 6

Banks are allowed by the Federal Reserve System to loan money based on a percentage of their deposits. The money deposited by Arkansas universities and their faculties, staffs, and students increased the funds available for loan, affecting businesses throughout the state, although more so in the local communities. The expansion of this bank credit in Arkansas due to university-related deposits was over $85 million.

Since a full-time-equivalent (FTE) figure was unavailable, the total number of faculty and staff was a head count, in-

TABLE 4
COLLEGE-RELATED LOCAL BUSINESS VOLUME

	BV_{CR}	=	$(E_L)_{CR}$	+	$(P_{LB})_{CR}$	+	$(BV_I)_{CR}$
ASUJ	$141,500,262	=	$59,704,752	+	$37,016,946	+	$44,778,564
ATU	54,367,136	=	22,939,720	+	14,222,626	+	17,204,790
HSU	41,699,852	=	17,631,248	+	10,892,361	+	13,176,243
SAUM	34,397,078	=	14,513,535	+	8,998,392	+	10,885,151
UAF	355,380,180	=	149,949,443	+	92,968,655	+	112,462,082
UALR	150,741,850	=	63,604,156	+	39,434,577	+	47,703,117
UAM	32,643,060	=	13,773,443	+	8,539,535	+	10,330,082
UAPB	43,539,567	=	18,371,125	+	11,390,098	+	13,778,344
UCA	93,402,890	=	39,410,502	+	24,434,511	+	29,557,877
TOTAL	$947,671,875	=	$399,897,924	+	$247,897,701	+	$299,876,250

BV_{CR}, college-related local business volume, was the sum of college-related local expenditures, $(E_L)_{CR}$; purchases from local sources by local businesses in support of their college-related business volume, $(P_{LB})_{CR}$; and local business volume stimulated by the expenditure of college-related income by local individuals other than faculty, staff, or students, $(BV_I)_{CR}$.

Source: Author's estimates from various economic and demographic reports on Arkansas.

TABLE 5
VALUE OF LOCAL BUSINESS PROPERTY COMMITTED TO COLLEGE-RELATED BUSINESS

	$(PR_B)_{CR}$	=	$(RP_B)_{CR}$	+	$(I_B)_{CR}$
ASUJ	$28,449,384	=	$11,469,352	+	$16,980,032
ATU	18,624,453	=	12,100,397	+	6,524,056
HSU	7,255,699	=	2,251,717	+	5,003,982
SAUM	7,335,934	=	3,208,284	+	4,127,650
UAF	59,077,159	=	16,431,538	+	42,645,621
UALR	25,236,843	=	7,147,821	+	18,089,022
UAM	6,412,245	=	2,495,078	+	3,917,167
UAPB	8,636,313	=	3,411,565	+	5,224,748
UCA	17,149,494	=	5,941,147	+	11,208,347
TOTAL	$178,177,524	=	$64,456,899	+	$113,720,625

$(PR_B)_{CR}$, the value of local business property committed to college-related business, was the sum of the value of local business real property committed to college-related business, $(RP_B)_{CR}$, and the value of local business inventory committed to college-related business, $(I_B)_{CR}$.

Source: Author's estimates from various economic and demographic reports on Arkansas.

cluding both full-time and part-time employees. FTE figures for students were used. The cash-to-business volume ratio of 0.037 was suggested by Caffrey and Isaacs.[15] It was very close to the 0.035 figure used by Booth and Jarrett and near the 0.0265 figure used by Mason.[16]

College-Generated Business Volume - Table 7

Universities operate campus enterprises which compete, in a sense, with existing or potential local private businesses. It should be noted, however, that if the universities were not present this business would not exist. As an indication of the magnitude of this market, food services and bookstore sales were available to measure. Just under $21 million of local business volume was generated due to the presence of these enterprises.

Government Impact - Table 8

The impact on state government was the second major area of interest in this study. Most important were the tax revenues attributed to the presence of Arkansas universities. These revenues included real-estate taxes, personal property taxes, and sales taxes received from faculty, staff, and students of the college and from local businesses on property allocated to their college-related sales. Certain federal funds were returned to the state on a per capita basis. The presence of over 4,000 public school children of college-related individuals contributed to this revenue sharing.

Government Revenues

The share of government revenues attributed to the presence of Arkansas universities was over $4.5 million. This figure was quite low because of the unavailability of some information needed for the model. Nevertheless, for each full-time student attending one of the universities, the state collected almost $100 in the form of taxes or other revenues.

College-related real-estate taxes paid to local governments included real-estate taxes paid by local faculty and staff and by local businesses for real property allocated to college-related business. College-related property taxes, other than real-estate, paid to local governments included inventory and other nonreal-property taxes paid by local businesses for assets allocable to college-related business. Federal aid to local governments allocated to

TABLE 6
EXPANSION OF THE LOCAL BANKS' CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS

	CB	=	(1-d)	×	(	D_c	+	(D_f	×	F)	+	(D_s	×	S)	+	(cbv	×	BV_{CR}))
ASUJ	$12,532,965	=	(1-0.03)	×	(	$157,104	+	$1847	×	910	+	$800	×	7,309	+	0.037	×	$141,500,262)
ATU	5,038,293	=	(1-0.03)	×	(	68,566	+	1847	×	361	+	800	×	3,059	+	0.037	×	54,367,136)
HSU	4,113,430	=	(1-0.03)	×	(	52,304	+	1847	×	333	+	800	×	2,538	+	0.037	×	41,699,852)
SAUM	3,255,787	=	(1-0.03)	×	(	47,603	+	1847	×	221	+	800	×	2,035	+	0.037	×	34,397,078)
UAF	32,664,300	=	(1-0.03)	×	(	397,315	+	1847	×	4548	+	800	×	14,660	+	0.037	×	355,380,180)
UALR	13,187,160	=	(1-0.03)	×	(	101,325	+	1847	×	1154	+	800	×	7,231	+	0.037	×	150,741,850)
UAM	3,020,536	=	(1-0.03)	×	(	30,339	+	1847	×	226	+	800	×	1,823	+	0.037	×	32,643,060)
UAPB	4,429,771	=	(1-0.03)	×	(	51,097	+	1847	×	479	+	800	×	2,525	+	0.037	×	43,539,567)
UCA	8,857,193	=	(1-0.03)	×	(	105,903	+	1847	×	611	+	800	×	5,551	+	0.037	×	93,402,890)
TOTAL	$87,099,435	=	(1-0.03)	×	(	$1,011,556	+	$1847	×	8843	+	$800	×	46,731	+	0.037	×	$947,671,875)

(CB), expansion of the local banks' credit base resulting from college-related deposits, was defined functionally above. The elements included local time-deposit and demand-deposit reserve requirements, (d), average deposits of the college in local banks, D_c, average deposits of each faculty and staff person in local banks, D_f, average deposits of each student in local banks, D_s, the total number of faculty and staff, (F), the total number of students, (S), the cash-to-business-volume ratio, (cbv), and college-related local business volume, BV_{CR}.

Source: Author's estimates from various economic and demographic reports on Arkansas.

TABLE 7
LOCAL BUSINESS VOLUME GENERATED BECAUSE OF THE EXISTENCE OF COLLEGE ENTERPRISES

	$(BV_U)_C$	=	$(I_{BV})_{C1}$	+	$(I_{BV})_{C2}$
ASUJ	$3,319,748	=	$2,000,117	+	$1,319,631
ATU	1,798,716	=	1,170.595	+	628,121
HSU	995,395	=	517,460	+	477,935
SAUM	1,624,627	=	918,100	+	706,527
UAF	7,415,314	=	4,286,686	+	3,128,628
UALR	1,502,200	=	38,616	+	1,463,584
UAM	746,384	=	472,397	+	273,987
UAPB	923,413	=	501,100	+	422,313
UCA	2,487,237	=	1,535,755	+	951,482
TOTAL	$20,813,034	=	$11,440,826	+	$9,372,208

$(BV_U)_C$, local business volume generated because of the existence of college enterprises, was the sum of receipts for food services, $(I_{BV})_{C1}$, and bookstore sales, $(I_{BV})_{C2}$.
Source: Author's estimates from various economic and demographic reports on Arkansas.

TABLE 8
COLLEGE-RELATED REVENUES RECEIVED BY LOCAL GOVERNMENTS

	R_{CR}	=	$(R_{RE})_{CR}$	+	$(R_{NRE})_{CR}$	+	$(R_A)_{CR}$
ASUJ	$445,951	=	$107,435	+	$280,850	+	$57,666
ATU	131,471	=	78,560	+	27,270	+	25,641
HSU	96,471	=	28,890	+	49,001	+	18,580
SAUM	87,923	=	21,104	+	49,532	+	17,287
UAF	1,448,860	=	510,079	+	724,975	+	213,806
UALR	601,324	=	242,140	+	288,520	+	70,664
UAM	100,780	=	19,526	+	59,541	+	21,713
UAPB	192,006	=	66,708	+	78,893	+	46,405
UCA	1,466,568	=	1,261,052	+	179,333	+	26,183
TOTAL	$4,571,354	=	$2,335,494	+	$1,737,915	+	$497,945

R_{CR}, college-related revenues received by local governments, was the sum of college-related real-estate taxes paid to local governments, $(R_{RE})_{CR}$, college-related property taxes, other than real-estate, paid to local governments, $(R_{NRE})_{CR}$, and federal aid to local governments allocated to the presence of the college, $(R_A)_{CR}$.
Source: Author's estimates from various economic and demographic reports on Arkansas.

the presence of the college was federal aid to local public schools allocable to children of college-related families.

Individual Impact - Tables 9, 10, 11

Individuals were also affected by the existence of Arkansas universities. Notable among these are jobs created and the resulting personal income. Over 36,000 jobs and $400 million in personal income were attributed to the presence of these institutions. In addition, over $18 million worth of durable goods were purchased with income from college-related jobs and business activities. For every ten students, eight jobs were created. Each student created $8,649 in additional income for local individuals, having purchased $398 worth of durable goods in the process.

The full-time jobs per dollar coefficient of 0.00007 means that for every million dollars of expenditures, seventy full-time jobs were created. This coefficient was the most conservative in the range of 0.00007 to 0.00009 suggested by Caffrey and Isaacs (p. 45). Booth and Jarrett[17] used 0.00010,

TABLE 9
NUMBER OF LOCAL JOBS ATTRIBUTABLE TO THE PRESENCE OF THE COLLEGE

	J_L	=	F	+	(j	×	$(E_L)_{CR}$)
ASUJ	5,090	=	910	+	(0.00007	×	$59,704,752)
ATU	1,967	=	361	+	(0.00007	×	22,939,720)
HSU	1,563	=	333	+	(0.00007	×	17,631,248)
SAUM	1,236	=	221	+	(0.00007	×	14,513,535)
UAF	15,045	=	4,548	+	(0.00007	×	149,949,443)
UALR	5,606	=	1,154	+	(0.00007	×	63,604,156)
UAM	1,190	=	226	+	(0.00007	×	13,773,443)
UAPB	1,765	=	479	+	(0.00007	×	18,371,125)
UCA	3,369	=	611	+	(0.00007	×	39,410,502)
TOTAL	36,831	=	8,843	+	(0.00007	×	$399,897,924)

J_L, the number of local jobs attributed to the presence of the college, was defined above. The variables used were the total number of faculty and staff, (F), the number of full-time jobs per dollar of direct expenditures in the local environment, (j), and college-related local expenditures, $(E_L)_{CR}$.

Source: Author's estimates from various economic and demographic reports on Arkansas.

but Mason[18] felt that because inflation had surpassed output in recent years that 0.00007117 was more appropriate.

The payrolls and profits per dollar of local direct expenditures, 0.66, means that a dollar spent in local businesses by local residents generated sixty-six cents of local income. The coefficient used was within the range suggested by Caffrey and Isaacs of 0.50 to 0.66.[19] This figure was likely to be a low estimate since Mason[20] and Booth and Jarrett[21] used 0.70862 and 0.71, respectively, based on their calculations. Comparable information for Arkansas was unavailable so this estimate was the best available.

The proportion of total income typically used to purchase durable goods, 0.046, was obtained from the Bureau of Labor Statistics' "Three Budgets for an Urban Family of Four Persons—Lower Budget" for Autumn, 1981. Using different sources,

TABLE 10
PERSONAL INCOME OF LOCAL INDIVIDUALS FROM COLLEGE-RELATED JOBS AND BUSINESS ACTIVITIES

	PI_{CR}	=	(f_L	×	W_F)	+	(p	×	$(E_L)_{CR}$)
ASUJ	$59,240,036	=	(1.00	×	$19,834,900)	+	(0.66	×	$59,704,752)
ATU	22,904,406	=	(1.00	×	7,764,191)	+	(0.66	×	22,939,720)
HSU	18,274,073	=	(1.00	×	6,678,979)	+	(0.66	×	17,631,248)
SAUM	15,202,512	=	(1.00	×	5,623,579)	+	(0.66	×	14,513,535)
UAF	153,699,965	=	(1.00	×	54,733,333)	+	(0.66	×	149,949,443)
UALR	61,396,606	=	(1.00	×	19,417,864)	+	(0.66	×	63,604,156)
UAM	13,491,104	=	(1.00	×	4,400,631)	+	(0.66	×	13,773,443)
UAPB	20,715,014	=	(1.00	×	8,590,072	+	(0.66	×	18,371,125)
UCA	39,228,946	=	(1.00	×	13,218,015)	+	(0.66	×	39,410,502)
TOTAL	$404,152,662	=	(1.00	×	$140,261,564)	+	(0.66	×	$399,897,924)

PI_{CR}, personal income of local individuals from college-related jobs and business activities, was the sum of two products. The first product was the proportion of faculty and staff who resided locally, f_L, and the gross compensation to faculty and staff, W_F. The second product was the payrolls and profits per dollar of local direct expenditures, (p), and college-related local expenditures, $(E_L)_{CR}$.

Source: Author's estimates from various economic and demographic reports on Arkansas.

TABLE 11
DURABLE GOODS PROCURED WITH INCOME FROM COLLEGE-RELATED JOBS AND BUSINESS ACTIVITIES

	DG_{CR}	=	i	×	PI_{CR}
ASUJ	$2,725,042	=	0.046	×	$59,240,036
ATU	1,053,603	=	0.046	×	22,904,406
HSU	840,607	=	0.046	×	18,274,073
SAUM	699,316	=	0.046	×	15,202,512
UAF	7,070,198	=	0.046	×	153,699,965
UALR	2,824,244	=	0.046	×	61,396,606
UAM	620,591	=	0.046	×	13,491,104
UAPB	952,891	=	0.046	×	20,715,014
UCA	1,804,532	=	0.046	×	39,228,946
TOTAL	$18,591,024	=	0.046	×	$404,152,662

DG_{CR}, durable goods procured with income from college-related jobs and business activities, was the product of the proportion of total income typically used to purchase durable goods, (i), and personal income of local individuals from college-related jobs and business activities, PI_{CR}.
Source: Author's estimates from various economic and demographic reports on Arkansas.

Mason[22] calculated a figure of 0.098 and Booth and Jarrett[23] estimated the proportion at 0.136. Since comparable data was not available for Arkansas, a conservative figure had to be used here.

CONCLUSIONS AND IMPLICATIONS

Two questions were posed initially in this study: they referred to direct and indirect contributions of Arkansas' universities to the economic well-being of the state, as well as the expected rate of return from investments committed to higher education. The contributions and returns seem to speak for themselves: University-related business volume amounted to well over $900 million. Local business property committed to university-related business amounted to over $175 million. University-related deposits expanded Arkansas' banks' credit base by over $85 million. Just under $21 million worth of business volume was generated by college enterprises in competition with local enterprises.

Local governments in Arkansas received over $4.5 million in university-related revenues. Over 36,000 jobs were attributable to the presence of these universities. $400 million in personal income came from university-related jobs and business activities. Over $18 million in durable goods were procured with this income.

Each dollar invested in higher education returned $2.37 in business volume and $2.88 in personal income. For each person employed directly by the universities, three more persons were employed because of university-related expenditures.

It must be noted that the figures above underestimated the true picture. Not included are the community colleges, the medical school, private colleges, and agricultural research and extension programs. The model itself was conservative in design. Not all of the information needed for the models was available so some of the totals were less than they might have been. In some cases estimates were made. Each time, a conservative figure was recorded. The usury law in effect in 1982 may well have had a depressing effect on the total dollar figures. Since its repeal in the fall general election of that year the figures probably have increased. Nevertheless, it seems clear that state higher education has had a tremendous impact on the economy of Arkansas. The presence of the state universities has increased business volume, the availability of jobs, and personal income.

There are long-range economic effects resulting from the presence of Arkansas' four-year universities. For each dollar spent by them for wages, services, goods, and other procurements, there will be many individuals, institutions, and businesses who will benefit directly or indirectly from the original expenditures.

In the state or community, disbursements from the universities in the form of salaries may be spent for rent, mortgage payments, food, services, durable goods, or deposited in savings accounts. Although businesses and banks are obvious beneficiaries, many others also benefit. The savings deposits allow the banks to make more funds available for the financing of homes, cars, major appliances, and other high-cost items. Increased values and property sales result in increased taxes and a broadened base for government services. To be fair, one must also consider the possible drawbacks resulting from the presence of a university. Fire and police protection, utilities and sanitation services, and road maintenance may or may not be provided by the institution. If not, they may represent an added burden rather than a benefit. Likewise, although university personnel bring in additional benefits, they also bring in additional children who add to school responsibilities.

Despite these disadvantages, offsetting them are substantial monetary and nonmonetary returns from higher education (Chamberlin, 1983). Included in these returns are increased lifetime earnings, job satisfaction, personal satisfaction, and service to society. It is likely that higher education more than pays for itself through the monetary returns investigated here alone. The emotional, moral, and aesthetic returns are undoubtedly even more valuable to both society and the individual. The inescapable conclusion seems clear: the dividends of higher education are well worth the investment.

This study examined only some of the economic benefits of higher education. As mentioned above, there are many more economic, social and cultural benefits accruing to both society and individuals.[24] Among these are educational services such as continuing education, seminars and lectures, research services such as libraries, and public events such as sports, speakers, concerts, films, art exhibits, symphonies, plays, and museums. Unfortunately, these features are difficult to measure in a manner meaningful to the readers of these studies. Since the economic benefits of higher education represent only one aspect of higher education's worth, it would be a valuable contribution for future researchers to address this issue of quality of life measures in higher education.

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[7] W.J. Mason, *The Impact of California State University on the Economy of California* (Long Beach, California: California State University, November, 1983).

[8] Mason, page 32.

[9] Booth and Jarrett, page 33 and Mason, page 33.
[10] Mason, page 34.
[11] Caffrey and Isaacs, page 45.
[12] Booth and Jarrett, page 34.
[13] Caffrey and Isaacs, page 54.
[14] Mason, page 125.
[15] Caffrey and Isaacs, page 54.
[16] Booth and Jarrett, page 43, and Mason, page 126.
[17] Booth and Jarrett, page 82.
[18] Mason, page 103.
[19] Caffrey and Isaacs, page 45.
[20] Mason, page 104.
[21] Booth and Jarrett, page 84.
[22] Mason, page 106.
[23] Booth and Jarrett, page 86.
[24] Chamberlin.

SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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THE ARKANSAS ECONOMY: QUARTER IV, 1985

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Revisions in the Personal Income data by the U.S. Department of Commerce for the period 1982 through 1985 have resulted in the data's reflecting what was generally already known. Economic activity in Arkansas, as measured by Personal Income, did not increase as rapidly as was generally experienced nationally. In fact, the drop in Personal Income in the second quarter was of sufficient magnitude to prevent its return to its former level by year-end.

With increases in the total number of employed workers in December and January, as well as decreases in the civilian labor force in those months, the unemployment rate (seasonally adjusted) dropped from 9.8 percent in November to 8.8 percent in December, and then to 8.2 percent in January 1986. Manufacturing wage and salary employment appeared to trough in early 1985 and has demonstrated rather steady improvement since then with the January figure on a seasonally adjusted basis showing an increase of approximately 6,100 over that of April 1985.

After a decline in the second quarter of the year, value added by manufacture grew in both the third and fourth quarters. For the year (1985), this indicator series increased by 4.1 percent over its level in 1984.

Cash receipts from farm marketings rose to $3.4 billion in 1985 but were only slightly above the 1982 level and were still below the level for 1980. The outlook for 1986 is somewhat better in the aggregate but the agricultural sector continues to experience over-supply conditions, the effects of high interest rates on existing loans, and large drops in the price of farm land.

Seasonally adjusted, construction activity increased in the fourth quarter. However, the totals for the year, in both residential and nonresidential construction were below those for 1984. Declines in the interest rate should stimulate residential construction during 1986 but the outlook for nonresidential construction activity remains uncertain.

At this juncture the preliminary data indicate Arkansas Personal Income grew to approximately $24.8 billion in the first quarter of 1986, or at a seasonally adjusted annual rate of 8.7 percent. Projections for the remainder of the year are for Personal Income to approach an annual rate of $26 billion by the fourth quarter. For the entire year, growth is forecast to be 5.5 percent, or subtantially above the outlook for inflation.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,016,100	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
1985*		1,051,080	960,100	46,250	210,317	8.6
	March	1,046,770	954,040	47,030	211,303	8.9
	April	1,045,370	952,760	46,960	207,542	8.8
	May	1,040,980	953,140	46,640	209,340	8.4
	June	1,041,820	956,860	46,370	209,270	8.5
	July	1,049,540	958,610	46,130	209,960	8.5
	Aug.	1,050,720	961,630	45,900	210,020	8.3
	Sept.	1,053,730	963,180	45,620	209,220	8.4
	Oct.	1,053,170	963,120	45,460	209,170	8.4
	Nov.	1,059,800	967,580	45,540	209,850	8.6
	Dec.	1,067,630	973,260	45,540	210,880	8.8
1986						
	Jan.	1,061,260	976,150	46,180	213,850	8.3
	Feb.	1,057,010	973,570	46,280	213,950	8.2
	March	1,052,430	970,200	46,310	214,220	7.9

*Note: Labor Force and Employment data for the period 1985 forward have been reestimated by the Employment Security Division. The reestimation resulted in relatively large revisions in Agricultural Employment, with revisions to a less degree in Total Employment and Civilian Labor Force data. Consequently, the data for 1985 forward are not comparable to that for the prior period.

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	+ 2.8	+ 2.5	+ 2.9	− 2.2	+ 0.2	+ 1.9
United States	+ 2.1	+ 1.6	+ 1.5	+ 1.0	+ 1.8	+ 1.7

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	12,790	14,640	15,892	17,862	19,191^R	19,957^R	22,406^R	24,310^R
Apr-Jun	13,206	14,774	15,851	18,078	19,155^R	20,383^R	22,410^R	23,784^R
Jul-Sep	13,798	15,208	16,527	18,811	19,344^R	20,612^R	23,041^R	23,820^R
Oct-Dec	14,102	15,640	17,005	18,912	19,812^R	21,173^R	23,614^R	24,277^R
Annual	13,474	15,066	16,319	18,416	19,376^R	20,531^R	22,868^R	24,048^R

^{R} = revised estimates (April 1986)

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	–1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	+ 0.5	+ 1.6	– 0.5	+ 0.8	+ 2.1
United States	– 0.6	+ 0.5	+ 0.3	+ 0.4	+ 0.5

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	5,222.6	5,902.0	6,553.6	7,167.6	7,474.8	7,898.0	8,868.1	9,367.6
Apr-Jun	5,427.4	6,052.2	6,415.0	7,388.1	7,569.1	8,147.1	8,993.1	9,322.3
Jul-Sep	5,547.7	6,135.9	6,688.3	7,601.8	7,581.8	8,419.3	9,116.7	9,398.2
Oct-Dec	5,638.0	6,299.6	6,942.7	7,589.5	7,746.9	8,529.2	9,218.7	9,600.0
Annual	5,458.9	6,097.4	6,649.9	7,436.8	7,593.2	8,248.4	9,049.2	9,422.0

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	− 3.4	+ 4.5	+ 2.0	+ 3.4	+ 0.1	+ 7.1
United States	+ 1.8	+ 4.3	− 4.7	− 4.3	+ 0.1	NA

NA - not available

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	3,139,796	3,442,336	3,410,760	2,990,044	3,354,452	2,833,156	3,408,036	3,263,042^R
Apr-Jun	2,715,736	3,059,744	3,554,600	2,806,176	3,795,964	2,641,692	3,165,680	3,374,386^R
Jul-Sep	3,082,684	3,076,148	3,870,404	3,052,440	3,163,160	3,292,736	3,058,936	3,376,970^R
Oct-Dec	2,986,880	3,143,660	4,576,516	2,987,076	3,200,636	2,801,852	3,197,856	3,617,159
Annual	2,981,274	3,180,472	3,853,070	2,958,934	3,378,553	2,892,359	3,207,627	3,407,889

^{R} - revised

NA - not applicable

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Total	− 4.2	− 5.7	− 19.1	+ 15.8	+ 12.6	− 22.4
Internal	− 14.0	− 16.7	− 21.6	+ 76.5	− 24.4	+ 9.1

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time		Traffic Tonnages			
Period		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985[2]		2,103	3,191	2,521	8,335
	Jan-Mar	1,880	3,321	1,582	7,357
	Apr-Jun	2,424	2,757	2,792	8,522
	Jul-Sep	2,194	3,649	2,112	9,592
	Oct-Dec	1,846	2,920	2,305	7,439

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	880,912	838,008	613,040	550,568	511,940	895,484	1,044,788	791,824[R]
Apr-Jun	988,740	645,112	564,516	642,712	598,212	919,996	975,436	775,466[R]
Jul-Sep	903,144	756,032	696,460	548,380	689,232	908,188	900,232	701,506[R]
Oct-Dec	888,712	575,136	686,040	585,608	780,880	901,384	773,368	795,934
Annual	992,005	706,530	664,550	632,800	648,130	906,260	917,550	766,182

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	314,489	371,300	289,236	356,916	376,064	269,324	417,860	368,124[R]
Apr-Jun	228,472	420,520	349,804	278,808	210,008	353,504	437,076	411,933[R]
Jul-Sep	383,588	296,012	396,316	259,592	317,844	389,684	543,684	477,483[R]
Oct-Dec	262,064	441,984	390,148	311,048	220,548	473,460	481,360	563,974
Annual	292,842	381,809	355,100	302,100	279,600	370,100	467,700	455,378

[R] - revised

LABOR FORCE ESTIMATES
February 1986, Not Seasonally Adjusted

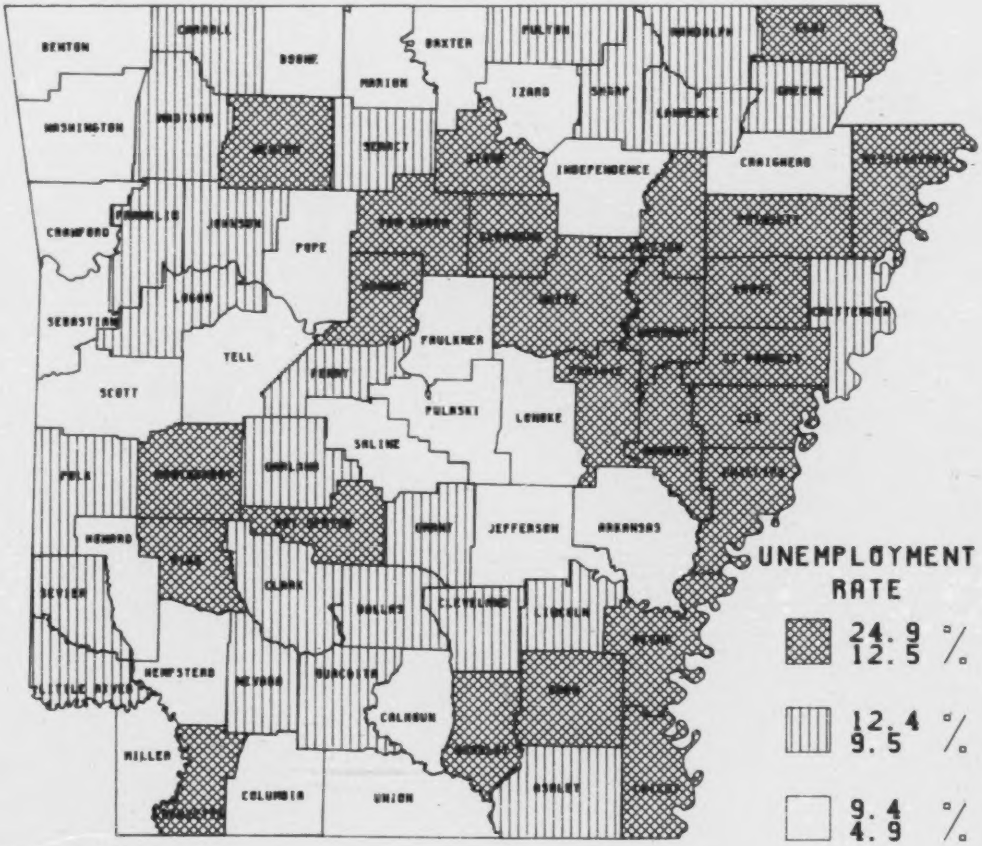
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	115,726,000	7.8	106,685,000
STATE OF ARKANSAS	1,035,100	9.5	936,400
Fayetteville-Springdale MSA	52,300	5.7	49,325
Fort Smith MSA	87,175	7.3	80,800
Little Rock-North Little Rock MSA	242,150	6.5	226,300
Pine Bluff MSA	35,400	8.3	32,475

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	9,325	9.4	8,450	Lee	4,575	19.7	3,675
Ashley	11,825	12.1	10,400	Lincoln	4,100	11.0	3,650
Baxter	9,675	6.5	9,050	Little River	5,150	11.2	4,575
Benton	42,350	5.1	40,175	Logan	8,350	10.8	7,450
Boone	13,550	7.7	12,500	Lonoke	18,400	8.3	16,875
Bradley	4,900	16.8	4,075	Madison	4,650	12.4	4,075
Calhoun	4,200	8.3	3,850	Marion	5,200	7.7	4,800
Carroll	8,750	12.3	7,675	Miller	18,500	8.8	16,875
Chicot	5,775	16.5	4,825	Mississippi	21,075	17.1	17,475
Clark	10,275	11.4	9,100	Monroe	4,250	12.9	3,700
Clay	7,925	17.7	6,525	Montgomery	2,825	14.2	2,425
Cleburne	7,550	14.2	6,475	Nevada	3,975	10.7	3,550
Cleveland	2,500	11.0	2,225	Newton	2,825	13.3	2,450
Columbia	12,075	8.3	11,075	Ouachita	13,025	10.7	11,625
Conway	7,650	13.7	6,600	Perry	3,975	11.9	3,500
Craighead	32,100	8.0	29,525	Phillips	10,975	19.4	8,850
Crawford	19,950	6.8	18,600	Pike	3,800	14.5	3,250
Crittenden	25,050	11.6	22,150	Poinsett	10,200	18.9	8,275
Cross	7,950	15.1	6,750	Polk	6,025	9.5	5,450
Dallas	4,150	10.8	3,700	Pope	20,425	8.0	18,800
Desha	6,775	13.7	5,850	Prairie	4,225	13.0	3,675
Drew	8,000	13.8	6,900	Pulaski	170,900	5.8	161,025
Faulkner	25,225	9.4	22,850	Randolph	6,875	12.0	6,050
Franklin	5,525	9.5	5,000	St. Francis	12,350	24.9	9,275
Fulton	3,475	11.5	3,075	Saline	27,625	7.5	27,625
Garland	31,150	9.6	28,150	Scott	5,100	4.9	4,850
Grant	5,525	9.5	5,000	Searcy	3,150	11.9	2,775
Greene	13,375	10.3	12,000	Sebastian	49,225	7.0	45,800
Hempstead	9,300	7.8	8,575	Sevier	6,400	9.8	5,775
Hot Spring	11,025	18.8	8,950	Sharp	5,300	10.4	4,750
Howard	5,650	8.0	5,200	Stone	3,700	14.2	3,175
Independence	14,500	9.3	13,150	Union	20,425	8.9	18,600
Izard	4,000	6.3	3,750	Van Buren	5,075	15.8	4,275
Jackson	8,600	18.3	7,025	Washington	52,400	5.7	49,325
Jefferson	35,400	8.3	32,475	White	23,575	13.9	20,300
Johnson	7,025	10.0	6,325	Woodruff	4,125	18.2	3,375
Lafayette	3,175	12.6	2,775	Yell	8,700	7.2	8,075
Lawrence	8,500	10.0	7,650				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
FEBRUARY 1986

IN FEBRUARY, ARKANSAS' CIVILIAN LABOR FORCE INCREASED 8400 TO TOTAL 1,035,100. TOTAL EMPLOYMENT INCREASED 10,800 TO TOTAL 936,400. UNEMPLOYMENT FELL 2,400 TO TOTAL 98,700. OF THE 75 COUNTIES, SCOTT HAD THE LOWEST UNEMPLOYMENTNT RATE AT 4.9 PERCENT AND ST FRANCIS, THE HIGHEST AT 24.9 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 50 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 5.7 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 8.3 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH MSAS WERE 6.5 AND 7.3 PERCENT, RESPECTIVELY.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NEWTON
SEARCY
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
CONWAY
WHITE
CROSS
CRITTENDEN
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LOGAN
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LEE
SALINE
POLK
MONTGOMERY
GARLAND
MONROE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
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CLARK
DALLAS
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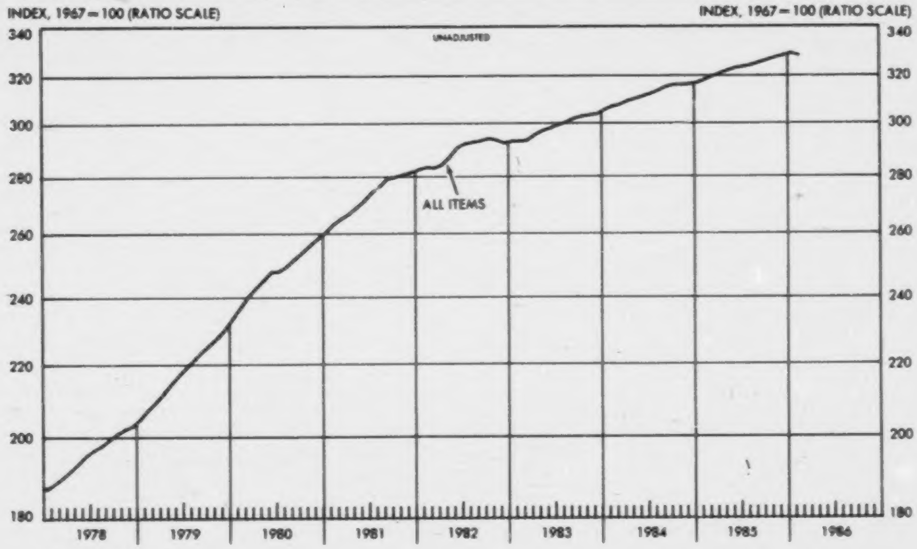
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
DREW
CALHOUN
BRADLEY
MILLER
LAFAYETTE
COLUMBIA
UNION
ASHLEY
CHICOT
UNEMPLOYMENT RATE
▩ 24.9 % 12.5 %
▥ 12.4 % 9.5 %
☐ 9.4 % 4.9 %

UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

BEST AVAILABLE COPY

CONSUMER PRICES—ALL URBAN CONSUMERS

In February, the consumer price index for all urban consumers fell 0.4 percent, seasonally adjusted (it fell 0.3 percent not seasonally adjusted). The index was 3.2 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items [1] NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
				Total	Renters' costs (Dec. 1982 = 100)	Home-owners' costs (Dec. 1982 = 100)	Maintenance and repairs NSA								
Rel. imp. [3]	*100.0*	*18.5*	*37.9*	*22.3*	*7.3*	*14.4*	*0.5*	*8.1*	*5.0*	*21.4*	*3.4*	*5.5*	*6.5*	*11.3*	*48.0*
1978	195.4	211.4	202.8	210.4			233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7			256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7			285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7			314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0			334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1985: Feb	317.4	308.2	344.0	373.3	112.6	110.7	366.8	388.8	204.2	316.0	213.0	358.2	392.3	416.8	278.5
Mar	318.8	308.6	345.3	374.7	113.2	111.0	370.0	391.2	205.1	319.0	213.7	367.9	395.4	423.2	279.6
Apr	320.1	308.7	346.5	376.4	113.7	111.5	368.0	392.8	205.4	320.9	214.1	374.3	397.5	428.0	280.3
May	321.3	308.4	348.4	379.7	114.7	112.6	366.2	392.8	205.3	320.2	214.5	377.7	399.8	429.7	280.2
June	322.3	309.1	349.4	381.1	115.3	112.9	367.6	394.7	205.9	320.2	215.0	378.8	402.6	430.3	280.9
July	322.8	309.2	350.3	383.1	115.8	113.6	367.8	394.2	205.6	320.3	215.2	379.1	404.3	429.4	281.4
Aug	323.5	309.6	351.7	385.3	116.3	114.3	370.6	393.6	205.9	319.8	215.7	377.4	406.6	427.6	282.1
Sept	324.5	310.7	352.2	386.1	116.7	114.5	368.7	394.4	206.8	319.3	216.2	375.2	409.0	426.8	282.6
Oct	325.5	311.1	353.3	387.9	117.5	114.9	368.5	393.7	207.7	320.5	217.0	374.3	410.9	425.8	284.1
Nov	326.6	313.2	355.2	390.5	118.2	115.7	372.7	395.4	208.4	322.6	217.7	377.4	413.0	428.4	285.4
Dec	327.4	315.2	356.2	391.9	118.5	116.2	373.7	396.5	208.3	323.9	218.4	379.4	415.7	430.3	286.2
1986: Jan	328.4	315.9	357.1	393.3	118.8	116.6	379.1	397.2	207.7	325.5	218.6	380.1	417.5	430.8	287.5
Feb	327.5	313.8	356.8	394.8	119.2	117.0	379.6	392.4	206.6	320.9	219.5	357.2	420.4	414.3	288.0

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas; gas (piped) and electricity; and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1985.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

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The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

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Arkansas Business and Economic Review

A Publication of the University of Arkansas

Volume 19, Number 1, 1986

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Trade Restrictions and An Empirical Investigation of the U.S. Dairy Industry

The Home Office Deduction

The Use of Defeasance: Debacle or Delight; A Critical Analysis of Perceptions and Opinions

The Arkansas Economy: Arkansas Personal Income

Selected Arkansas and U.S. Economic Indicators

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The *Arkansas Business and Economic Review* is published quarterly by the Bureau of Business and Economic Research as a public service and mailed on request without charge to addresses in the U.S. The Bureau is a division of the College of Business Administration, University of Arkansas, Fayetteville. The College is fully accredited by the American Assembly of Collegiate Schools of Business. The Bureau is a member of both the Association for University Business and Economic Research and The Travel and Tourism Research Association.

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Bureau of Business and Economic Research
College of Business Administration
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FEDERALISM IN TRANSPORTATION REGULATION: THE ARKANSAS EXPERIENCE

Grant M. Davis
Oren Harris Professor of Transportation
University of Arkansas, Fayetteville

Joe Horsley
Professor of Marketing
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The presence, evolution, and controversy associated with federalism is certainly not new to Arkansas,[1] but its recent major expansion in the field of transportation is polemical. Federalism means the principle of national organization and thus represents an earnest attempt to develop uniformity of laws and practices among the states. In the transportation area, federalism focuses upon uniformity of business practices through the preemption of state laws in the areas of market entry and exit, price, and operating rules.[2]

Economic regulation of transportation modes is undergoing, or has undergone, dramatic change at the federal level.[3] Federalism in this area, however, is not keeping pace in as much as a majority of states still engage in detailed economic regulation of rail and truck transport in intrastate traffic. Arkansas, for example, regulates intrastate rail roads, motor carriers, and bus operators.[4] Only Arizona, Florida, Wisconsin, and Maine do not regulate one or more of these modes of transport.[5]

Laws enacted by Congress during the past eight years have substantially diminished or eliminated the degree of economic regulation of transportation on interstate for-hire transportation. These laws are: (1) the Air Cargo Deregulation Act of 1978 and Airline Deregulation Act of 1978; (2) Railroad Reform and Regulatory Modernization Act of 1980; (3) the Motor Carrier Regulatory Reform Act of 1980; and (4) the Motor Bus Regulatory Reform Act of 1982. The aviation acts totally deregulated air freight and passenger service proffered by for-hire air carriers; but the rail, bus, and motor acts did not, and instead exacerbated federal-state relationships because of preemptions, i.e. federalism. The primary purpose of this manuscript is to examine the impact of federalism on the Arkansas Transportation Commission (ATC), the principal regulatory agency in the state that must deal on an institutional basis with federalism in the field of for-hire transportation. To accomplish this task, the overall impact of federalism on truck, bus, and rail service in Arkansas will be tersely evaluated.[6] Each of these topics has been reviewed in previous issues of this *Review*.[7] A brief examination of the regulatory structure in Arkansas is necessary before evaluating the impact of transportation federalism upon the state.

TRANSPORT REGULATORY STRUCTURE IN ARKANSAS

The impact of federalism in transportation matters has fallen primarily on the Arkansas Transportation Commission, the only economic transportation regulatory agency in Arkansas.[8] Although based in the State Department of Commerce, the ATC consists of three commissioners, including chairman, who are appointed by the Governor. Reappointment for specific periods is possible. The staff consists of a chief administrator, a general counsel, one rate analyst, an insurance clerk, one administrative assistant, and five clerical employees. Because economic and safety enforcement represents a major activity pursued by the agency, twenty-two staff employees are directly involved in enforcement activities in all parts of the state. The ATC, moreover, is self-sufficient in terms of funding, with all of its activities supported by fines and fees.[9]

Even though the Arkansas Waterways Commission and the Civil Aeronautics Commission are concerned, respectively, with water and air transport in Arkansas, they are not economic regulatory agencies.[10] The Arkansas Transportation Commission, on the other hand, exercises primary jurisdiction over intrastate rail, truck, and bus questions regarding rates, market entry, and services: all activities impacted by transportation federalism, i.e., preemptive laws affecting rail and bus operations. The impact of the federal laws will now be briefly reviewed because a more in-depth analysis has been provided in previous issues of this *Review*.

RAILROADS

Before Congress enacted the Staggers Amendment to the Interstate Commerce Act, the Arkansas Transportation Commission exercised primary jurisdiction over intrastate rates,[11] routes, service, and to some extent abandonments.[12] The Staggers Amendment[13] substantially diminished the ATC's authority regarding intrastate rail activities. With respect to rate matters, all intrastate rate practice procedures must be certified by the ICC regarding its compatibility with provisions of the Staggers Amendment. Failure to gain ICC certification automatically eliminates intrastate rail rate regulation statutes with federal rules and procedures assuming precedence over state regulatory laws. Staggers provisions are primarily designed to insure revenue adequacy and as such rate regulation jurisdiction is dependent upon rate/variable cost ratios on certain traffic movements. In 1980, the Arkansas Transportation Commission conducted eleven hearings on rail matters; but, by 1984, the number had declined to three even though ATC's intrastate rate procedures were certified by the Interstate Commerce Commission as being compatible with the Staggers rate provisions.[14]

Chronically excess capacity represents a quintessential problem confronting the domestic railroad industry, ergo Staggers provided for comprehensive abandonment of trackage and services that are unprofitable to rail carriers.[15] Accelerated abandonment procedures were enacted prior to 1980, even though the Staggers provisions facilitated the abandonment of light density lines, but provisions also permitted state, or local, government units or private groups to purchase the abandoned lines. In Arkansas, a substantial but undeterminable number of miles of track has been abandoned and no governmental or private entity has purchased any of these abandoned properties.[16] The economic impact of abandonments or contractions in the rail industry's physical plant has been uneven in Arkansas from shippers' perspectives, but the major impact appears to be in the state's agricultural sector.[17]

Table 1 summarizes intrastate abandonment proceedings filed with the ATC since 1980. Note that while seven of the eleven were protested in some fashion, all eleven applications were requests to close offices or stations. In Arkansas, railroad rate or price changes have been almost as controversial as abandonment practices.[18] Major controversies, however, involve contract rates involving coal movements, an area excluded from the Arkansas Transportation Commission's primary jurisdiction.[19] Intrastate rate certification procedures, moreover, resulted in the intrastate rate process being restructured to conform with interstate provisions, i.e., regulatory rate jurisdiction narrowly constricted with rate increases being for the most part be-

TABLE 1
ATC RAIL ABANDONMENT ACTIONS
1980 - 1984

Year	Railroad	Type Abandonment	Protested	Granted	Location
1980	MO-PAC	Spur	Yes	Yes	Texarkana
	MO-PAC	Agency Closing	Yes	Yes	Batesville
	SL-SF	Terminal Closing	No	Yes	Jonesboro, Trumann, Marked Tree
	Arkansas Western	Agency Closing	Yes	Yes	Waldron
	SL-SF	Agency Closing	No	Yes	Osceola
1981	None				
1982	B-N	Terminal Closing	Yes[1]	Yes	Rogers, Bentonville, Fayetteville
	B-N	Agency Closing	Yes	Yes	
	MO-PAC	Line	No	Yes	Little Rock
1983	MO-PAC	Agency Closing	Yes[2]	Yes	Hope
1984	MO-PAC	Agency Closing	No	Yes	Wynne
	MO-PAC	Close Telegraphers-Clerk Office	Yes	Yes	Batesville

Source: Arkansas Transportation Commission

[1] Protest withdrawn after B-N filed an amended application.

[2] This application was the only action vigorously protested by a representative of the agricultural industry.

yond the Commission's jurisdiction.[20] Formal rate cases conducted by the ATC declined from 11 in 1980 to 3 in 1984.[21]

MOTOR BUS TRANSPORTATION

Both passenger and package freight represents important traffic to bus companies licensed to operate intrastate in Arkansas. Regarding motor bus passenger traffic, the bus represents a vital mode of transport to Arkansas because of certain unique demographic features of the state.[22] Motor bus transport in the state, moreover, is intertwined with interstate operations frequently provided by the same carrier, i.e., Greyhound, Trailways, and Jefferson Bus Lines have both inter- and intrastate operating authority and hence routes. Fares, market entry, and exit, as well as service frequency were subject to the Arkansas Transportation Commission until 1982 when Congress passed the Motor Bus Reform Act of 1982. Federalism (preemption of state regulation) has levied an inordinate impact upon both the ATC and the state's traveling public.[23]

In terms of motor bus market entry activity, the ATC heard four applications in 1980, six in 1981, four in 1982, six in 1983, and five during 1984.[24] But, twenty-five bus applications were decided by the Arkansas Transportation Commission during 1984 on a modified procedure basis, i.e., no formal hearing.[25] Some of these twenty-five applications obviously included rate matters, although the ATC does not report separate rate applications unless a formal protest is lodged. Federalism in the rate area, however, has resulted in the Bus Act's provision for carriers to appeal adverse state regulatory decisions regarding rates directly to the ICC for action following a specific period of time of rejection or failure to act on a rate increase. This is designed to eliminate substantial differences between intra- and interstate passenger rate levels. The impact on Arkansas traffic has been rate increases on certain routes. Also, abandonments and scheduling have created some concern for bus ridership in the state.

TRUCK TRANSPORTATION

Federalism has impacted upon truck transportation since 1935, not so much in terms of economic regulation,[26] but in the areas of operations, interstate compacts, and taxes. The Motor Carrier Regulatory Reform Act of 1980 contained no preemption provisions regarding state economic regulation but purely intrastate carriers that connect with interstate carriers now have more operational leverage in operations and rates. However, the end result of free market entry and rate liberalization has impacted substantially on Arkansas-based carriers and shippers.

A substantial majority of the Arkansas Transportation Commission's regulatory efforts involves motor carriers. Between 1980 and 1984, 336 carrier applications were filed seeking new or modified authority; an average of 67 applicants per year. These applications required formal hearings, but an additional 195 applications were processed during 1984 without hearings.[27] An inordinate amount of the agency's efforts and resources are devoted to the application process; a necessity when balancing monopoly vs. competition factors in public policy matters. No recent legislation has been introduced to end market entry regulations in Arkansas[28] even though federalism has encouraged new carriers at the interstate level.

As a microcosm of the overall industry, Arkansas carriers have engaged in fierce price discounting on interstate traffic. But, in 1984 the ATC prohibited price discounting on intrastate traffic, an action supported by a public hearing, but subsequently and unilaterally rejected by the ATC, although accompanied with a vigorous dissent by one Commissioner.[29] In short, discounting is now permitted in Arkansas on intrastate traffic.

SUMMARY AND CONCLUSIONS

The primary purpose of this paper was to measure the impact of federalism on the state institution that is concerned with economic regulation of transportation, i.e., the Arkansas Transportation Commission. The major impacts have been in market entry and exit, and rates involving for-hire railroad and bus carriers. In these areas, the jurisdictional purview of the Arkansas Transportation Commission has been diminished considerably.

The ATC's major activity, trucking, has not been directly affected, but an inordinate amount of pressure is being extended to supersede much of its regulatory authority in this area. Price discounting is permitted and capacity problems remain.

Federalism is real, it is expanding in transportation, and the Arkansas Transportation Commission's role has diminished in all areas of economic regulation except trucking. Pressure to preempt trucking at the state levels will probably continue and intensify.[30]

---

[1] Although federalism is primarily associated with taxation, representation, and other commercial areas, transportation federalism in the railroad rates can be traced to the Shreveport and Wisconsin passenger cases occurring in the early 1900s. See D. Philip Locklin, *Economics of Transportation*, (6th ed.: Homewood, IL: Richard D. Irwin, Inc., 1966), pp. 266-268.

[2] A salient example of operational matters is truck length and weight uniformity provided by the Surface Transportation Assistance Act of 1982; a tax act increasing fuel levies but permitting greater width, length, and weights for motor carriers on interstate highways. See Kevin H. Horn, "Federal Preemption of State Transportation's Economic Regulation: Conflict Versus Coordination," *Transportation Journal*, Vol. 23, No. 2 (Winter, 1983), pp. 28-46.

[3] Regulatory reform and modernization basically permits pricing freedoms and liberalized market entry and exit but retains some regulatory structures such as operating authority, tariff publishing, and filing financial accounts with the ICC.

[4] *Arkansas Motor Carrier Act*, Act 397 of 1955.

[5] These four states totally deregulated all modes of transportation. In other states, however, rate and entry regulation on intrastate state traffic remains in tact.

[6] Aviation regulation was never imposed on Arkansas intrastate for-hire traffic.

[7] Grant M. Davis, "Existing and Proposed User Fees on Arkansas Rivers—A Preliminary Analysis," *Arkansas Business and Economic Review*, Vol. 14, No. 3, (Fall, 1981), pp. 1-6; "The Staggers Act: An Assessment of Its Impact on Arkansas," *Arkansas Business and Economic Review*; "The Motor Carrier Act of 1980"; "A Preliminary Analysis of the Bus Reform Act on Arkansas," *Arkansas Business and Economic Review*, Vol. 17, No. 1, (1984), pp. 170; and "Impact of the Motor Carrier Act of 1980 on Arkansas: A Preliminary Analysis," *Arkansas Business and Economic Review*, Vol. 13, No. 2 (Summer, 1980), pp. 31-36.

[8] The Commission has primary jurisdiction over for-hire carriers engaged in intrastate commerce by rail, motor, and bus as well as safety enforcement—an activity shared with the Arkansas State Highway Department.

[9] Supra note 4.

[10] These two agencies consist of small staffs and are governed by boards appointed by the Governor for specific periods. Basically, the agencies are promotional in nature and serve to encourage citizen use of waterways and airways. The Arkansas Aeronautics Commission also coordinates airport development within the state. For a somewhat dated, but in-depth, analysis of the relationship existing between the transportation agencies in Arkansas and the federal government, see Grant M. Davis, "Should Arkansas Develop an Executive Department of Transportation?" *Arkansas Business and Economic Review*, Vol. 8, No. 1, (Spring, 1974), pp. 11-19.

[11] The Commission still requires detailed financial accounts from rail carriers for intrastate operations which are principally used in rate analysis. Also, see Arkansas Development Commission, *Arkansas: Report and Recommendations* (Little Rock, AR: ADSC, October, 1976), pp. 191-193.

[12] Abandonments were gradually eliminated from the Arkansas Transportation Commission's jurisdictional purview over the time span of 1958-1980, when Congress established an elaborate framework for appeals of adverse abandonment decisions from state regulatory agencies. See Donald V. Harper, *Transportation in America*, (2nd ed.: Englewood Cliffs, NJ: Prentice-Hall, Inc., 1982), pp. 512-513.

[13] U.S. Congress, *Public Law 96-1430*, 96th Congress, 2nd. Session, September 24, 1980.

[14] Correspondence with the Arkansas Transportation Commission, Feb. 8, 1985.

[15] Supra, note 13. The Staggers provisions, moreover, represent the elimination of abandonment activities encouraged by the federal government starting in 1920.

[16] The Staggers Rail Act provides for state or local acquisition of abandoned rail property. In 1982, the state of Arkansas considered purchasing the Rock Island trackage from Little Rock to the Oklahoma line,

but this plan was not implemented. Presently, one Indian tribal council from Oklahoma is considering purchasing the property from the Bankrupt Carrier Estate Trustee. Also, consult Arkansas Development Study Commission, *Arkansas: Report and Recommendations* (Little Rock, AR: ADSC, October, 1976), p. 191.

[17] Although no definite study has been concluded regarding agricultural transportation and rail abandonments in Arkansas, personal interview with Department of Agriculture transportation official suggest that the impact has been substantial. (Interview with Wes Kriebel, U.S.D.A., Washington, DC., December 10, 1984.) During the public hearings conducted in 1981, the Arkansas Weight Study Commission was concerned with constraints on agricultural shippers brought about by weight limits on trucks, which had increased in demand because of the putative lack of rail facilities.

[18] For a number of years the state's electric utilities intervened in major rate cases against various railroads regarding coal rates.

[19] Contract rates must only be filed with the vs. Interstate Commerce Commission and the contents of the contract are not public.

[20] Under the Staggers provision, rates can be adjusted without ICC or state approval if the new rates do not exceed a specified percentage of variable cost associated with the consignment being increased.

[21] Supra, note 14.

[22] Supra, note 7. The demographics are income-age specific.

[23] *Ibid.* These have taken the form of rate adjustments and abandonments.

[24] Supra, note 14.

[25] Ibid.

[26] The Motor Carrier Act of 1935 extended detailed economic regulation to certain segments of the interstate for-hire trucking industry.

[27] Supra, note 14.

[28] Ibid., at the federal level, however, a move is being considered to preempt state regulation of motor carriers. See, Thomas M. Strah, "Packwood Suggests Tradeoff Over State Uniformity, Decontrol," *Transport Topics*, No. 2590. (April 1, 1985), p. 1. Also consult "State Economic Regulation Uniformity," *Private Line*, Vol. 3, No. 1, (February, 1985), p. 17.

[29] Arkansas Transportation Commission, MC 145, Vol. 1, March 27, 1984.

[30] Stral, *Loc. cit.*

TRADE RESTRICTIONS AND AN EMPIRICAL INVESTIGATION OF THE U.S. DAIRY INDUSTRY

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INTRODUCTION

In an open economy, domestic price support programs impose an enormous fiscal burden on the general taxpayers when the welfare cost of the distortion is sought to be minimized. A part of the fiscal burden is often reduced by the introduction of trade restrictions. When trade restrictions take the form of import quotas, a part of the lost consumer surplus is appropriated by import license holders because of the difference between the domestic market price and the world price, while the increase in the price paid by the domestic consumers reduces the gap between the support price and the domestic market price and thereby lightens the fiscal burden. In fact, Section 22 of the U.S. Agricultural Adjustment Act of 1933 provides for such import quotas in view of the supplementary agricultural imports interfering with the price support program.

The U.S. dairy industry protected under the price support scheme has been subject to quota restriction since 1951. The U.S. dairy program has become more burdensome than all other commodity programs taken together. Now at $1.5 billion, net outlays on this program are projected to rise to $3.2 billion by fiscal year 1986 if the minimum support level remains at 80 percent of parity.[1]

In view of the staggering deficits in the balance of payments, the U.S. interest in the expansion of export of other agricultural products prompted it to offer a substantial increase in import quotas on dairy products in the Multilateral Trade Agreement negotiated in Geneva on April 12, 1979. The Agreement has been enacted into U.S. law as the Trade Act of 1979, which provides for an increase in the U.S. import dairy products by 1.188 billion pounds of milk equivalent.

In this paper a partial equilibrium analysis has been utilized to capture the welfare implications of this increase in import quotas and we have empirically estimated the welfare changes for the year 1983 under two hypotheses: (1) the government maintains the support price at the 1982 level and bears the additional fiscal burden imposed by import liberalization, and (2) the government keeps the fiscal expenditure on the support program constant and allows the support price to come down to a lower level.

THE MODEL

The first hypothesis is formalized with the help of Figure 1 which uses the partial equilibrium technique of Wiseman and

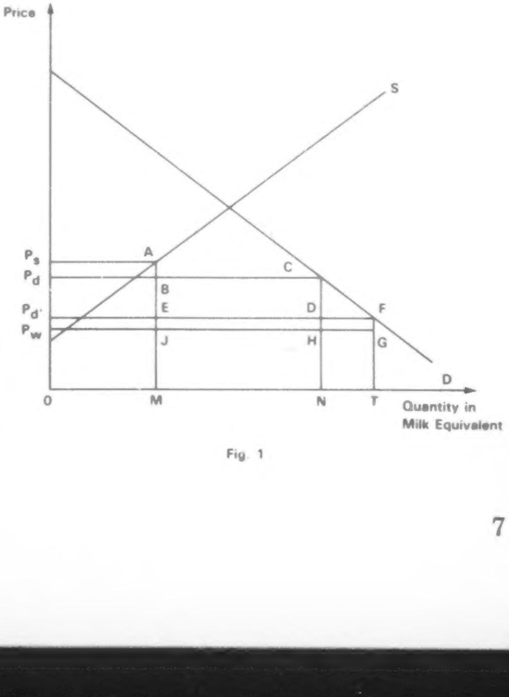

Fig. 1

Sedjo applied in their analysis of export embargo effects in the logs and lumber market and presents the welfare effects in terms of Harberger's welfare indicator based on his three basic postulates.[2]

Given the domestic support price at OP_s in Figure 1, domestic production is at OM. The import quota is initially fixed at MN. The domestic market is cleared at price OP_d. So, government expenditure on price support is given by the area ABP_dP_s. Importers buy their quotas at world price OP_w and sell in the domestic market at price OP_d thereby making a monopoly profit given by the area CHJB. Now let us raise import quotas from MN to MT. If the government keeps the support price unaltered at OP_s, the domestic production remains fixed at OM. Then the additional quantity made available in the market through enlargement of import quotas leads to a fall in the domestic market clearing price from OP_d to OP_d'. This price effect of the additional import quotas will have the following consequences in terms of domestic welfare:

1. The domestic consumers will gain in terms of an increase in consumer surplus by the area P_dCFP_d',
2. The government expenditure for price support will increase by the area P_dBEP_d',
3. The importers will lose their monopoly profit by the area BCDE, while they will gain the area DFGH, and
4. The domestic producers will encounter neither any gain nor any loss, since unchanged support price keeps their production level unaltered.

If all gains and losses are equally weighted, the net welfare gain of the additional import quota will be given by the area CDF plus the area DHGF.

To derive an estimate of the net welfare gain we need to know (1)the additional import quota (NT), (2) the reduction in the domestic market clearing price $(OP_d - OP_d')$, and (3) the difference between the domestic market clearing price and the world price $(OP_d' - OP_w)$. On the basis of this information we get

$$\text{Net Welfare Gain} = (NT)\,[\tfrac{1}{2}(OP_d - OP_d') + (OP_d' - OP_w)] \tag{1}$$

The implications of the second hypothesis are captured in Figure 2.

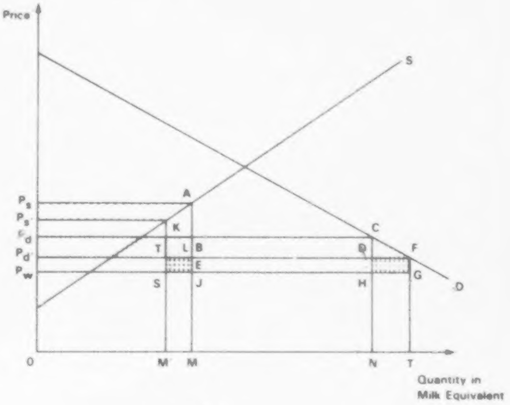

Fig 2

The depressing effect of the import liberalization policy combined with fixed support price produces a heavier fiscal burden on the federal government. This leads domestic producers to expect a cut in the support price guaranteed by the government. If the government reduces the support price from OP_s to OP_s' in Figure 2 in such a way as to keep expenditure constant, domestic production will come down to OM'. The additional import quota is now given by [M'M + NT]. Now we have the following consequences in terms of domestic welfare:

1. The consumers will gain by the area P_dCFP_d',
2. The government expenditure on price support will remain unchanged,
3. The importers will lose the area BCDE, while they will gain the area TEJS plus the area DFGH, and
4. The producers will lose the area P_sAKP_s'.

So, the net welfare gain equates to P_dBEP_d' plus CDF plus TEJS plus DFGH minus P_sAKP_s'. Now, an estimation of the net welfare gain needs the following information:

1. The division of the additional quota between the production loss (ΔP) and the consumption gain (ΔC),
2. The reduction in support price ($P_s - P_s'$), and
3. The fall in domestic price ($_d - P_d'$).

In this model fiscal expenditure of the government on price support program (E) and the additional import quota (ΔQ) are given and we have four endogenous variables ΔP, ΔC,P_s' and P_d'. If we have information about price elasticity of supply (e_s) and price elasticity of demand (e_d) we can use four equations to solve for the four unknowns.

First, the product of the initial supply and the difference between initial support price and domestic price is equated to the product of the new supply and the difference between the new support price and domestic price on the basis of the constancy of the government expenditure. Second, the given increase in import quota is equated to the sum of the production loss and the consumption gain. Third, given the elasticity of demand, we equate the increase in consumption to the product of the elasticity of demand and the propotional change in domestic price. Fourth, given the elasticity of supply, we equate the change in domestic supply to the product of the elasticity of supply and the proportional change in support price. Thus in terms of Figure 2, we have the following four equations:

$$[P_s - P_d](P) = [P_s' - P_d'](P') \tag{2}$$

$$(\Delta P + \Delta C) = \Delta Q \tag{3}$$

$$\Delta C = (e_d)\,[(P_d - P_d')/P_d]\,(C) \tag{4}$$

$$\Delta P = (e_s)\,[(P_s - P_s')/P_s]\,(P) \tag{5}$$

where P and C are the initial levels of domestic production and consumption.

Solving equations (2) - (5) simultaneously, since ΔP, ΔC, P_s' and P_d' are known then the net welfare gain can be estimated in the following manner:

$$\text{New Welfare Gain} = [OP_d - OP_d'](OM) + [OP_d' - OP_w]\,[M'M + NT] + [OP_d - OP_d'](NT) - [OP_s - OP_s'](OM) - (\tfrac{1}{2})\,[OP_s - OP_s'](M'M) \tag{6}$$

In the case of a fall in the support price, the loss to producers is outweighed by the gain of others because, in Figure 2, the area P_dBEP_d' is greater than the area P_sAKP_s'. But the sectional interest of the domestic dairy producers is going to be hurt by the policy. Following Harberger's distributional weights scheme, if the nation attributes a much heavier weight on their loss, the scheme may come up with an adverse welfare effect for the nation as a whole.[3]

EMPIRICAL RESULTS

The U.S. production of all dairy products in 1983 was equivalent to 123.62 billion pounds of milk equivalent, while domestic consumption was estimated at 123.87 billion pounds of milk equivalent.[4] The Trade Act of 1979 provides for a substantial increase in import quotas on cheese which in terms of milk equivalent comes out to an increase of 1.188 billion pounds.[5] The average domestic price of manufacturing-grade milk in 1983 was 11.10 cents per pound, while the 1983 average support price was 11.92 cents per pound.[6] The corresponding world price estimated on the basis of average cheese prices was 7.50 cents per pound.[7]

The short-run supply elasticity of U.S. dairy products, estimated by Hammond[8] to be 0.089, has been employed for this estimation in equation (5), since the impact is studied in the very short-run. The relevant elasticity of demand for equation (4) has been taken from the estimated retail demand elasticities for selected farm products by George and King who estimated their own price elasticity of demand for fresh milk to be −0.3455.[9]

Under the hypothesis of an unchanged support price at 11.92 cents per pound, the additional import of 1.188 billion pounds is estimated to produce a fall in the market clearing domestic price of 0.31 cents per pound. As a result, government expenditure per pound of domestic milk production goes up from 0.82 to 1.13 cents. The estimated fiscal expenditure on price support for dairy products rises from $1.01 to $1.39 billion, while the net welfare gain according to equation (1) comes out to be about $40.93 million.

Under the second hypothesis that the government would continue to spend $1.01 billion on price support for dairy products, the estimated fall in domestic production will be 231 million pounds and the rise in domestic consumption will be 957 million pounds, together making up the quota increase of 1,188 million pounds. The resulting fall in domestic market clearing price is 0.25 cents per pound while that in support price is 0.35 cents per pound. With this changed situation, the estimated loss to the domestic producers is $30.9 million while the net welfare gain for the nation as a whole is about $41 million. The loss to domestic producers must be given roughly about 2.4 times as much weight as the gain to the rest of the community if the policy is to produce no welfare change in the country.

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[1] Joseph A. Pechman, ed., and others, "The Nondefense Budget," *Setting National Priorities: The 1982 Budget*. (Washington: Brookings Institution, 1982), pp. 94-95.

[2] Clark A. Wiseman and Roger A. Sedjo, "Effects of an Export Embargo and Related Goods: Logs and Lumber," *American Journal of Economics* (August 1981), pp. 222-35; and Arnold C. Harberger, "Three Basic Postulates for Applied Welfare Economics: An Interpretive Essay," *Journal of Economic Literature* (September 1971), pp. 1731-74.

[3] Harberger, "On the Use of Distributional Weights in Social Cost-benefit Analysis," *Journal of Political Economy* (April 1978), pp. 325-37.

[4] U.S., Department of Agriculture, *1980 Agricultural Statistics*, 1984a, pp. 369-78.

[5] U.S., Department of Agriculture, *Impact of the Trade Act of 1979 on the Dairy Industry*, by Truman F. Graff (Washington: GPO, May 1980), pp. 22-35.

[6] U.S., Department of Agriculture, *Dairy: Outlook and Situation*, ERSDA-387, 1984b, p. 26.

[7] U.S., Department of Agriculture, *Dairy: Outlook and Situation*, p. 27.

[8] J.W. Hammond, *Regional Supply Analysis*, Staff Paper 74-12, Department of Agricultural and Applied Economics, University of Minnesota, (July 1980), p. 2.

[9] P.S. George and G.A. King, *Consumer Demand for Food Commodities in the United States with Projections for 1980*, Giannini Foundation Monograph 26, California Agricultural Experiment Station (March 1980), pp. 46-51.

THE HOME OFFICE DEDUCTION

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INTRODUCTION

In these days of increased work loads and burgeoning entrepreneurship, large numbers of individuals are maintaining and regularly using home offices. Until recently, individuals who maintained a home office found it relatively easy to claim a deduction on their income tax returns for expenses of an office. However, in the Tax Reform Act of 1976, Congress significantly curtailed eligibility for this deduction. The Internal Revenue Code now states that in order to qualify for the deduction, the home office must:

1. be a specific part of the residence, although this need not be the taxpayer's principal residence;
2. be used exclusively for business purposes;
3. be used on a regular basis;
4. be a principal place of business, or be a place of business used by the individual for meeting with patients, clients, or customers in the normal course of business; and
5. in the case of employees, be for the convenience of the employer as opposed to being merely appropriate and helpful for employees.[1]

THE EXCLUSIVITY TEST

The requirement for exclusive use is strictly interpreted. The part of the home which the taxpayer wishes to qualify for the deduction must be used solely for professional or business purposes. No deduction is allowed for a room which is used for both business and personal purposes by the taxpayer or by members of the family. The area reserved must also be regularly used for business purposes. Incidental or occasional use is not sufficient, even if the area is being exclusively used for business or professional reasons. A statutory exception to this exclusive use rule allows taxpayers licensed under state law to provide day care services for children, senior citizens, or for the physically or mentally handicapped to qualify for the deduction although the licensee uses his or her home or the portion thereof reserved for business purposes for both business and personal use.[2]

SPECIFIC PART OF THE RESIDENCE

The home office does not have to be a separate room or partitioned off area in the home. As illustrated by a recent tax court opinion, a portion of a taxpayer's bedroom used exclusively for business purposes can qualify for the deduction although one portion of the same room was used both for business and for personal reasons (sleeping), and the fact that the two areas of the room were not separated by any physical demarcation, provided that the area reserved for business purposes is separate and discrete from the other portion of the room.[3] Other recent tax court cases indicate that other portions of rooms such as large walk-in closets and enclosed hallways might also qualify for the home office deduction.[4]

THE HOME OFFICE AS A PRINCIPAL PLACE OF BUSINESS

Federal courts have defined "principal place of business" to be the focal point of a taxpayer's activities.[5] To meet this definition, a taxpayer must use his or her home office for the conduct of a continuing and regular activity which qualifies as a "trade or business."[6] There is no requirement that the taxpayer be engaged in this trade or business prior to reserving this space in his or her home as a home office as long as he or she is engaged in a "substantial ongoing activity with a profit making objective."[7]

In light of this definition, the IRS typically denies home office deductions to taxpayers who are not self-employed. For example, a number of tax court cases dealing with college professors attempting to claim a home office deduction have held that the focal point of a teacher's activities is the place where he or she teaches, thus supporting the long-standing IRS position of disallowing a teacher's home-office deduction.[8] Therefore, a college teacher who spent 50 to 60 hours per week at home doing research and writing in his field of specialization was not entitled to a home office deduction, since, although work done at home was required by his employer as a condition of his employment, his use of a home office to satisfy this requirement was not a stated condition of employment and was therefore not for the "convenience of the employer" but "merely appropriate and helpful" to the employee.[9]

However, in a recent case with facts similar to those cited above, the U.S. Court of Appeals, Second Circuit, allowed a home-office deduction to a college professor. The court here held the deduction allowable despite the fact that the professor was hired to teach on campus. In noting that the Tax Court erred in failing to consider other aspects of the professor's employment, the Court of Appeals emphasized that research and writing conducted in the home office was required by the employer, that the professor lacked a safe on-campus office, thus making a home office a "practical necessity," and that 80 percent of the professor's work-related time was spent at home doing research.[10] Despite this recent favorable ruling, it is doubtful whether another teacher could take the deduction without having such unusual circumstances as above. Suffice it to say that this recent case has placed this area in a state of flux.

The rule denying employees the deduction, of course, does not apply to employees who utilize home offices exclusively in connection with activities unrelated to their employment. Employees may similarly claim a deduction for a home office as a principal place of business when used during a period during which they are not employed, such as during an extended leave of absence or a sabbatical period.[11]

THE HOME OFFICE AS A SECONDARY PLACE OF BUSINESS

While the Internal Revenue Code requires that any home office must constitute a principal place of business, this requirement does not mean that it must be the taxpayer's only place of business. A taxpayer who conducts two or more different businesses simultaneously can take the home office deduction when his home office is the principal place of a secondary business: when with respect to that particular business "the home office is the taxpayer's principal location for conducting that business."[12] Two recent cases illustrate this point. In one, three concert musicians employed by the New York Metropolitan Opera Company were allowed home office deductions for the business use of their apartments as practice facilities. The court ruled that since practice was essential to the musician's professional success and that the employer did not provide the musicians with practice facilities, the home office was the principal place of business for the musicians although not the principal place of business for the employer.[13] In the second case, a dermatologist who practiced exclusively at a local hospital also owned and managed six single family residential units as rental properties. The taxpayer set aside a bedroom in his condominium as an office from which he managed these properties. The court in this case held that the dermatologist's efforts constituted a secondary trade or business activity for which the home office deduction applied.[14]

The Internal Revenue Code and cases interpreting the statutory language are clear, however, that a home office deduction can be claimed only for "trade or business activities." The deduction cannot be claimed for activities that involve management of an investment portfolio.[15]

A home office may also qualify for the deduction if it is not a principal place of the taxpayer's business but is used in the normal course of business for meeting with patients, clients, or customers. Here, "meeting" entails physical contact; expenses of maintaining a home office are not deductible in cases where the office is used only to receive "after-hours" telephone calls from clients.[16] Presumably, a taxpayer whose principal place of business is outside his residence could still qualify for the deduction where he uses the home office exclusively for meeting with clients who are located near the home office.

TAX TREATMENT OF THE HOME OFFICE

Individuals who qualify for a home office deduction may deduct a portion of the expenses used to maintain their residences as deductible business expenses. The IRS recognizes two forms of acceptable allocation of expenses. The first method involves computing the percentage of total square footage used for business. The second method of allocation is based on the ratio of the number of rooms used for business to the total number of rooms in the residence.[17] The allocable portion of all normal household expenses such as property taxes, mortgage interest, utilities, insurance, repairs, and the like are tax deductible as business expenses. The entire amount of expenses that relate solely to the home office are deductible as well. In addition, the office area of the home is subject to depreciation.

There are, however, limitations with respect to the home office deduction. For example, home office expenses cannot produce a loss.[18] Moreover, deductions for maintenance and depreciation are allowed only to the extent of the gross income derived from the trade or business conducted in the home office less itemized deductions such as interest and taxes.[19]

Another major problem which arises from the taking of the home office deduction occurs when a taxpayer sells his residence in which he has kept and maintained a home office for a number of years. The law requires individuals with home offices to treat the sale of their residences as two separate sales, one being the sale of a residence and the other the sale of a business. The sale of the residence portion of the taxpayer's home does not result in taxable income if the taxpayer reinvests in another principal residence of equal or greater value within two years.[20] However, any gain realized on the business portion of the sale (i.e., the sale of the home office portion of the residence) will be taxed. Particularly in cases where the taxpayer has owned the house for a number of years and where he depreciates the home office portion of his residence, the business portion of the sale may result in a large capital gain subject to taxation.

Home owners so situated may avoid capital gains by violating the exclusive use provision in the year of sale by making some personal use of the home office. The IRS has ruled that the sale of a residence containing a home office qualifies for the special treatment noted above only when the home office is being used at the time of sale.[21] Where a taxpayer does not qualify for the home office deduction at the time of sale, an allocation of the purchase price between business and personal portions of the residence is not required, thus making it possible for the taxpayer to defer the entire gain. Of course, a taxpayer who sells his house in this manner can still reestablish a home office in his new residence.

CONCLUSIONS

Although current regulation has made it more difficult for taxpayers to claim a home office deduction, it is still possible, with careful planning, to qualify. However, the recent flurry of courtroom activity suggests that the rules concerning home offices are subject to change. Taxpayers should, therefore, consult with trained professionals to insure that their best interests are served when utilizing the home office deduction.

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[1] Internal Revenue Code (I.R.C.) 18 USC 280A (1976).

[2] IRC §280A(c).

[3] *George Weightman*, TC Memo 1981-301 (1981).

[4] *C.D. Hughes, Jr.*, TC Memo 1981-140 (1981); *L.T. Alverson*, 35 BTA 482 (1983).

[5] *R. Chauls*, TC Memo 1980-471 (1980); *G.H. Storzer*, TC Memo 1982-328 (1982).

[6] IRS Private Letter Ruling 79-04059 (1979).

[7] *Snyder*, 49 AFTR 2d 82-1061 (1982).

[8] *R. Chauls, supra*, Note 5.

[9] *George Weighton, supra*, Note 3.

[10] *David J. Weissman*, 82 TC Memo No. 38 (1982), reversed *Weissman v. Commissioner*, 55 AGTR 2d 85-539 (1984).

[11] *Benjamin J. Heineman*, 82 TC Memo No. 41 (1984).

[12] *Drucker v. Commissioner*, 52 AFTR 2d 83-5804 (1983).

[13] Id.

[14] *Edwin R. Curphey*, 73 TC 61 (1980).

[15] *Joseph and Dorothy Moller*, 83-2 USTC par 9698 (1983).

[16] *John W. Green*, 78 TC 428 (1982).

[17] Rev. Rule. 62-180, 1962-2, C.B. 52 (1962).

[18] IRC §280A(c)(5).

[19] *Ira S. Feldman*, 84 TC 1 (1985).

[20] IRC §1034.

[21] Rev. Rul. 82-26, 1982-2, C.B. 58 (1982).

THE USE OF DEFEASANCE: DEBACLE OR DELIGHT; A CRITICAL ANALYSIS OF PERCEPTIONS AND OPINIONS

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A SUMMARY OF THE ISSUE

On November 29, 1983, the Financial Accounting Standards Board (FASB) approved by the narrow margin of four to three a controversial accounting technique relating to the extinguishment of long-term debt known as "in-substance" defeasance (hereafter referred to simply as defeasance). This ruling was intended to give meaning and provide direction to an inventive debt-restructuring process that departed from the typical notion of an early extinguishment of debt transaction. Previously, the Securities and Exchange Commission (SEC) had banned use of defeasance, claiming that financial statements could be manipulated thereby misleading investors. However, the passage of Statement of Financial Accounting Standards (SFAS) No. 76 now gave corporate officers the green light to use the technique extensively.

Ordinarily, the extinguishment of a corporation's long-term debt, primarily bond indebtedness, had been effected at the end of a specified period upon the maturing of the debt. However, in certain instances, such as in order to take advantage of low interest rates or a significantly reduced price attached to the bonds, the redemption of those bonds was made prior to maturity. Such action, referred to as the early extinguishment of debt, took place either by reacquiring (purchasing) the bonds on the market or redeeming the bond issue, frequently by issuing new debt securities in place of the old bonds.

Recently, a controversial debt-restructuring method known as defeasance emerged to present a new challenge to the traditional idea of an early extinguishment of debt transaction. Defeasance is one particular form of an early discharge of a debt obligation which enables companies not only to remove massive long-term debt from their balance sheets but also to bolster earnings for that period. This creative accounting technique spruces up corporate financial statements and maximizes cash availability without actually having to buy back bonds previously sold to investors. Since the first publicly announced corporate example of defeasance was disclosed by Exxon Corporation in July 1982, this debt-restructuring technique has gained the attention of the accounting world, having been praised by some, criticized by others.

The device takes several forms, but each essentially involves the satisfaction of long-term debt by placing the debt and funds to retire the debt into a trust account. The first two corporations to announce publicly the use of the technique, Exxon Corporation and Kellogg Company, provide two striking examples of how an "innovative" application of accounting principles can strengthen a firm's financial position.

Approval of the accounting technique, defeasance, therefore seemed to endorse the creative accounting shown by Exxon Corporation and Kellogg Company. Accordingly, many felt that use of defeasance would increase and encompass every type of industry. However, a main hindrance to its use was the ability of companies to come up with the necessary cash to buy the government securities.[5]

Exxon

With respect to the Exxon Corporation, the restructuring allowed Exxon to remove from its balance sheet six long-term debt issues sold between 1967 and 1979, with a face value of $515 million. These bonds, which bore interest coupons of 5.8 percent to 6.7 percent, were selling at a sharp discount from their face value to match higher yields available on recently issued bonds. As a result of their low market price, Exxon was able to take all of the debt off their books at a cost of only $312 million. For each bond issue, Exxon bought a portfolio of federal government and agency securities, with an overall yield of 14 percent, and deposited them with a trustee, the Morgan Guaranty Trust Company.[2] The cash generated by those securities was sufficient to meet interest and principal payments on each bond issue, thus allowing Exxon to take the debt off its books without actually buying back the older issues. As a matter of fact, by the time the last Exxon bond issue matures in 2009, the trustee will have accumulated the $515 million needed to pay off the principal bond face value.[3]

The accounting impact of the trade was to remove the debt from the balance sheet and to record, after deferred taxes, as a gain in the period of the transaction the difference between the price paid for the government securities and the face value of the debt. This difference amounted to a $130 million profit realized by Exxon in the second quarter of 1982.[4]

Kellogg

The Kellogg Company introduced a different variation of defeasance which had essentially the same result noted by Exxon, that is, the reduction of a significant portion of long-term debt while simultaneously creating a "paper profit."

In this use of an early extinguishment of debt technique, Kellogg deposited $75 million worth of bond issues also with the Morgan Guaranty Trust Company. However, unlike Exxon, risk-free government securities were not bought to match against the debt; rather, Kellogg gave Morgan Guaranty $65.6 million in cash. The trustee then turned the money over to a number of other companies who took on the $75 million of Kellogg debt. Kellogg was able to eliminate the bonds from its balance sheet and record a $5.7 million after-tax profit. This deal actually benefited both parties; the companies assuming the debt were able to get a $65.6 million loan with tax and cash flow benefits as if they had issued deep-discount bonds themselves.[5] Although government securities were not used against the debt, all of the criteria for a defeasance transaction were met; therefore, it was properly classified as such.

STUDY OBJECTIVES

This study was undertaken to present information about the acceptability and use of defeasance as perceived by some of the major financial statement preparers affected by SFAS No. 76.[6] Their opinions may ultimately be helpful in the FASB's further study and development of SFAS No. 76, specifically as to whether it enhances or detracts from a firm's financial position.

Historical Background Leading to the Development of SFAS No. 76

The extinguishment of long-term debt prior to maturity has been in accounting practice for several years. When circumstances warrant, many corporations will take advantage of the opportunity to reacquire their long-term debt on the premise that this immediate action will reduce interest or redemption costs in the future. Usually, these circumstances arise because of low interest rates that exist at the time or the bonds are selling at a price far below face value.

The first bulletin to establish stated guidelines to the practice of early debt extinguishment was published by the Accounting Principles Board (APB) in October, 1972. APB Opinion No. 26, "Early Extinguishment of Debt," was designed to give direction and guidance as to the appropriate accounting for early extinguishment transactions of all kinds of debt. APB Opinion No. 26, and its related publication, SFAS No. 4, "Reporting Gains and Losses from Extinguishment of Debt," issued in March, 1975, defined what constituted an early extinguishment of debt, the appropriate accounting treatment, and the resultant disclosure of the gain or loss that arose from such activity. The gain or loss was determined in accordance with APB Opinion No. 26 and the determination thereof in accordance with SFAS No. 4.

However, neither publication specifically addressed the practice of "in-substance" defeasance nor the accounting treatment to be applied to its gain or loss. For that reason, companies were able to do as they desired when using defeasance because no rules restricted the use of that particular form of early debt extinguishment. Yet, in the absence of specific rules, the general rules made available in APB Opinion No. 26 and SFAS No. 4 prevailed when defeasance was utilized. As if to justify their own actions, an Exxon spokesman said, "We feel the action we took was in accordance with generally accepted accounting principles that now exist, and our auditors have agreed."[7]

Exxon and Kellogg public announcements supporting the use of defeasance drew the concern of many groups, particularly the FASB and SEC. The FASB was the first institution to act on the issue in early August, 1982, as they tentatively concluded that corporations could not extinguish debt by the use of defeasance unless they were specifically authorized to do so under the terms of the original bonds. Their report, the FASB "Action Alert" of August 11, 1982, decided that debt should not be considered extinguished unless the debtor had no further legal obligation with respect to the debt. Accordingly, since a defeasance transaction did not result in the legal extinguishment of debt, early extinguishment accounting with related gain recognition was not considered appropriate.[8]

This action prompted the SEC to issue Financial Reporting Release No. 3 which placed a moratorium on the use of defeasance by all U.S. companies, except in situations involving tax-exempt debt. The commission, however, did not formally condemn the practice; rather, it preferred to leave the issue with the FASB.[9] Pending issuance of a final standard by the FASB, the SEC felt that the FASB's tentative decision should be followed in relation to generally accepted accounting principles.

An exposure draft of the proposed statement, "Extinguishment of Debt and the Offsetting of Restricted Assets Against Related Debt," was issued on the topic in October, 1982, basically to reinforce the tentative conclusions made previously by the FASB. The exposure draft stated that no form of defeasance, whether for tax-exempt debt or taxable debt, legally constituted an extinguishment of debt. Therefore, "in-substance" defeasance transactions, wherein assets were placed in a trust and irrevocably restricted for use solely to satisfy specified debt obligations, did not fully satisfy the long-term debt obligation.[10] The debtor would still have an obligation to the creditor, thus the debt would not be legally extinguished.

However, after consideration of all comments received, the FASB seemingly reversed their prior stance on the issue by revising and reissuing the exposure draft. The revised exposure draft, "Extinguishment of Debt," stated that

> ... debt would be considered extinguished if the debtor irrevocably places cash or other assets in a trust to be used solely for satisfying specific debt service requirements of that debt ... ("Extinguishment of Debt," Statement of Financial Accounting Standards No. 76, 1983, p. 8).

Evidently, many of the comments received from the first exposure draft provided additional insights on the FASB's position on defeasance, hence, the revised exposure draft was created.

Overview of Statement of Position No. 78-5

Proponents of defeasance based their technical support upon AICPA Statement of Position (SOP) No. 78-5, "Accounting for Advance Refundings of Tax-Exempt Debt."[11] Although SOP No. 78-5 was limited to the early extinguishment of tax-exempt debt, its opinion was considered applicable in transactions involving non-tax-exempt debt on the premise that the concept of defeasance was not changed by the tax attributes of the debt.[12]

Specifically regarding the practice of defeasance, the SOP stated that an advance refunding in which the refunded debt was defeased resulted in an early extinguishment of debt because the refunded debt was legally satisfied.

Also, the SOP established criteria that the defeasance transaction must meet to be legally satisfied and a completed transaction. The criteria are as follows:

> The issuer is irrevocably committed to refund the old debt.
>
> The funds used to consummate the advance refunding are placed in an irrevocable trust with a reputable trustee for the purpose of satisfying the old debt at a specified future date(s).
>
> The funds used to consummate the advance refunding are invested in qualifying securities with maturities that approximate the debt service requirements of the trust.
>
> The invested funds used to consummate the advance refunding are not subject to lien for any purpose other than in connection with the advance refunding transaction (Statement of Position—Accounting for Advance Refunding of Tax-Exempt Debt," 1978, p. 124).

Overview of SFAS No. 76

In view of the revised exposure draft and the support generated through SOP No. 78-5, SFAS No. 76 was issued by the FASB in November, 1983. The FASB was itself sharply divided on the issue as approval was gained by the narrow margin of four to three, with one negative vote being cast by the FASB chairman, Donald J. Kirk.[13]

The three dissenters did not agree with the pronouncement because they felt that the debtor was not legally released from being the primary obligor under the debt obligation. In their opinion, the setting aside of assets in trust did not constitute either the disposition of assets with potential gain or loss recognition or the satisfaction of a liability with potential gain or loss recognition.

The applicable portions of SFAS No. 76 are as follows:

Circumstances for an Extinguishment of Debt

> A debtor shall consider debt to be extinguished for financial reporting

purposes in the following circumstances:

a. The debtor pays the creditor and is relieved of all its obligations with respect to the debt. This includes the debtor's reacquisition of its outstanding debt securities in the public securities markets, regardless of whether the securities are cancelled or held as so-called treasury bonds.

b. The debtor is legally released from being the primary obligor under the debt either judicially or by the creditor and it is probable that the debtor will not be required to make future payments with respect to that debt under any guarantees.

c. The debtor irrevocably places cash or other assets in a trust to be used solely for satisfying scheduled payments of both interest and principal of a specific obligation and the possibility that the debtor will be required to make future payments with respect to that debt is remote. In this circumstance, debt is extinguished even though the debtor is not legally released from being the primary obligor under the debt obligation.

Restrictions on the Nature of Assets in Trust

The following requirements regarding the nature of the assets held by the trust shall be met to effect an extinguishment of debt:

a. The trust shall be restricted to owning only monetary assets that are essentially risk free as to the amount, timing, and collection of interest and principal. The monetary assets shall be denominated in the currency in which the debt is payable. For debt denominated in U.S. dollars, essentially risk-free monetary assets shall be limited to:

(1) Direct obligations of the U.S. government
(2) Obligations guaranteed by the U.S. government
(3) Securities that are backed by U.S. government obligations as collateral under an arrangement by which the interest and principal payments on the collateral generally flow immediately through to the holder of the security.

However, some securities described in the previous sentence can be paid prior to scheduled maturity and so are not essentially risk free as to the timing of the collection of interest and principal; thus, they do not qualify for ownership by the trust.

b. The monetary assets held by the trust shall provide cash flows (from interest and maturity of those assets) that approximately coincide, as to timing and amount, with the scheduled interest and principal payments on the debt that is being extinguished.

Disclosures

If debt is considered to be extinguished under the provisions of the previous paragraphs, a general description of the transaction and the amount of debt that is considered extinguished at the end of the period shall be disclosed so long as that debt remains outstanding.

In-Substance Defeasance and Extinguishment of Debt

The Board believes that, in general, recognizing the effect of in-sub-

> stance defeasance transactions as extinguishing debt is reasonable because settlement in cash is not always feasible and the effect of an insubstance defeasance is essentially the same. Accordingly, the Board believes that, in certain circumstances, debt should be considered extinguished for financial reporting purposes even though the debtor is not legally released from being the primary obligor under the debt obligation. In the July 1983 revised Exposure Draft, the Board proposed in paragraph 3(c) that debt be considered extinguished if the debtor irrevocably places cash or other assets in a trust to be used solely for satisfying specific debt service requirements of a debt obligation and the debtor is virtually assured that it would not be required to make future payments with respect to that debt, even though the debtor was not legally released from being the primary obligor under the debt obligation. The revised Exposure Draft also would have imposed certain restrictions in paragraph 4 regarding the nature of the assets held by the trust to reinforce the high threshhold imposed by the Board for recognizing an extinguishment of debt when the debtor remains the primary obligor ("Extinguishment of Debt," Statement of Financial Accounting Standards No. 76, 1983, p. 8).

The FASB ruling thus permits defeasance only for a trust that purchases certain risk-free government or government-guaranteed securities to satisfy the debt. It does not include other types of transactions, such as selling bonds to other companies rather than setting up a trust with government securities. Had SFAS No. 76 been in effect in 1982, Exxon Corporation's use of defeasance would have been allowed to continue; Kellogg's would not have been allowed.

DEFEASANCE: A CRITICAL ANALYSIS

The primary source of data for this study was a questionnaire sent to the top financial executives of seventy-five companies randomly selected from *Fortune's* "500 largest industrial companies" for 1983. The questionnaire was designed to elicit the respondents' personal opinions about the success or failure of SFAS No. 76. The questionnaires were answered by the following persons: assistant treasurer; manager, financing; assistant corporate controller; director, financial information section; and others as evidenced by the requests for copies of the study. A sample questionnaire is presented in Appendix A. Appendix B contains a listing of the companies selected for inclusion in the study.

Thirty-one replies (41 percent) were generated; however, three respondents stated that company policy forbade them from responding to surveys, thus the questionnaire was not returned. Therefore, only twenty-eight respondents (37 percent) actually completed and returned the questionnaire. As a result, the total of twenty-eight replies was used in all calculations.

Questions 1 and 2 dealt with the respondents' past and present use of defeasance, the primary purpose of which was to determine if use of defeasance would expand because of the recent passage of SFAS No. 76.

The first question specifically dealt with the past use of defeasance, prior to the SEC moratorium that was issued in August, 1982. The data pertaining to the prior use of defeasance are shown in Table 1. As shown in the table, only two respondents had utilized this particular form of an early extinguishment of debt technique prior to 1982. Further, of that number, one respondent stated that his prior use of de-

TABLE 1
COMPANIES UTILIZING DEFEASANCE PRIOR TO AUGUST, 1982

Question 1. "Prior to the SEC moratorium issued in August, 1982, did your firm utilize defeasance?"

_______ Yes _______ No

Response	Number of Responses	Percent of Total
Yes	2	7%
No	26	93%
Totals	28	100%

feasance had only been minor. Ninety-three percent of the respondents had not used defeasance in the past.

That figure was to be expected, however, because of the relative newness and innovation attaching to this accounting technique. Prior to the public announcements made by Exxon Corporation and Kellogg Company, even the FASB and SEC were not actively involved with this particular use of an early extinguishment of debt, except in cases involving tax-exempt debt. The use of defeasance with taxable debt had not been utilized to a large degree before 1982.

Question 2, pertaining to the future use of defeasance, asked if the respondents were presently considering the use of defeasance because of the recent passage of SFAS No. 76. This question was designed to elicit information which would lead to an estimation of the future use of defeasance. Responses are presented in Table 2.

Surprisingly, Table 2 data indicate that only 36 percent of the respondents anticipate use of defeasance in the future. By an almost two to one margin, respondents were not considering the use of defeasance in the future, suggesting limited utilization subsequently. It may be that potential users feel that the market would "see-through" the numbers in accordance with the efficient capital markets hypothesis or for other reasons believe that the method is not in their best interests.

Question 3 dealt with the respondents' attitudes toward the passage of SFAS No. 76, specifically as to whether the respondents were in agreement or disagreement with the decision rendered by the FASB. This question also was designed to indicate, in an indirect way, the respondents' feelings toward defeasance in general. Their acceptance of defeasance, or displeasure with the technique, would also give an indication of the future extent of its use. The data from question 3 are presented on Table 3.

TABLE 2
COMPANIES PRESENTLY CONSIDERING USE OF DEFEASANCE

Question 2. "Is your firm presently considering the use of defeasance in the future?"

_______ Yes _______ No

Response	Number of Responses	Percent of Total
Yes	10	36%
No	18	64%
Totals	28	100%

TABLE 3
COMPANIES' ATTITUDES TOWARD PASSAGE OF SFAS NO. 76

Question 3. "Do you agree with the decision made by the Financial Accounting Standards Board on defeasance?"

______ Strongly Agree	______ Disagree
______ Agree	______ Strongly Disagree
______ Neutral	______ No Opinion

Response	Number of Responses	Percent of Total
Strongly Agree	7	25%
Agree	14	50%
Neutral	4	13%
Disagree	1	4%
Strongly Disagree	1	4%
No Opinion	1	4%
Totals	28	100%

As shown above, 75 percent of the respondents were in agreement with the ruling, with one-third of that number voicing strong approval. The results from this question lead one to infer that most of the top financial executives in the industrial business community are favorably satisfied with the decision and approve of the use of defeasance as a debt-reduction and profit-making tool.

Taking questions 2 and 3 together, they appear to provide a paradox. Why would 64 percent respond that they did not wish to use the procedure in the future whereas 75 percent agreed with the ruling? It appears that they believe that it is acceptable for the "other person" but not appropriate for them.

The next two questions pertained to reporting the outcome of a defeasance transaction in the financial statements. The results of these questions are especially relevant because of the recent passage of SFAS No. 76. However, the disclosures stated in SFAS No. 76 do not give specific guidance as to the proper reporting of the result of a defeasance transaction; accordingly, the answers provided reflected that fact.

Question 4 was related to the real economic impact of the reporting treatment of early debt extinguishment in general. This question was intended to elicit information regarding the attitudes of financial executives toward the current reporting treatment associated with early extinguishment of debt transactions of all types, not specifically defeasance transactions. This question will give an indication of the perceptions that financial executives have toward the current reporting treatment; their approval or disapproval. The results are shown in Table 4.

As indicated in Table 4, the majority of the financial executives were in agreement with the fact that the current treatment of an early debt extinguishment reflected its real economic impact; yet, an important number, 21 percent, were in disagreement.

Question 5 was very important as it was the primary basis toward validating the secondary purpose of the study. This question was designed to gather the respondents' personal opinions as to the reporting of the result of a defeasance transaction. Because of the minimal guidance given the

TABLE 4
EARLY DEBT EXTINGUISHMENT REPORTING REFLECTS ITS REAL ECONOMIC IMPACT

Question 4. "Do you agree that the financial reporting treatment of early debt extinguishment reflects its real economic impact?"

_______ Strongly Agree
_______ Agree
_______ Neutral
_______ Disagree
_______ Strongly Disagree
_______ No Opinion

Response	Number of Responses	Percent of Total
Strongly Agree	5	17%
Agree	14	50%
Neutral	2	8%
Disagree	5	17%
Strongly Disagree	1	4%
No Opinion	1	4%
Totals	28	100%

reporting of the profit and loss arising from defeasance, as described in SFAS No. 76, the answers provided were distributed widely among alternatives listed in the questionnaire. These data are exhibited in Table 5.

Information in Table 5 indicates that a conflict exists when reporting the result of a defeasance transaction between its inclusion as a "separate component of income from continuing operations, footnote disclosure," and its inclusion as an "ex-

TABLE 5
RESPONDENTS' REPORTING TREATMENT OF THE RESULT OF DEFEASANCE

Question 5. "How do you feel the profit (loss) from defeasance should be shown?"

_______ Separate component of income from continuing operations, footnote disclosure.
_______ Separate component of income from continuing operations, no disclosure.
_______ Extraordinary gain (loss).
_______ Other. (Please specify) _______________

Response	Number of Responses	Percent of Total
Separate Component of Income from Continuing Operations, Footnote Disclosure	12	43%
Separate Component of Income from Continuing Operations, No Disclosure	2	8%
Extraordinary Gain (Loss)	9	32%
Other	5	17%
Totals	28	100%

traordinary item." However, upon further examination of the responses to this question, three of the five respondents who chose the "Other" category were, in essence, also intending for the outcome of defeasance to be included in the "separate component of income from continuing operations with footnote disclosure" category. Therefore, the percentage of respondents choosing the first category increased to 54 percent from the original 43 percent. As a result, in this sample a thin majority of financial executives would include the profit, or loss, from defeasance as a part of continuing operations, but as a separate component and with footnote disclosure.

One proponent of the extraordinary item treatment qualified his answer by referring to SFAS No. 4, which states that

> Gains and losses from extinguishment of debt that are included in the determination of net income shall be aggregated and, if material, classified as an extraordinary item, net of related income tax effect ("Early Extinguishment of Debt," Statement of Financial Accounting Standards No. 4, 1975, p. 3).

His point, therefore, seems to be that all early extinguishments of debt should be consistently reported as extraordinary items.

Further, a major theme common to several responses was the materiality of the profit or loss that arose from a defeasance transaction. Materiality relates to the magnitude of an item that influences decisions of a financial statement user. A material result from a defeasance transaction would influence a user's decision; an immaterial result would not. Many respondents indicated their accounting treatment was based on the assumption that the result was material. No alternative reporting practices were suggested when the outcome was immaterial.

The last two questions of the study were designed to allow the respondents to express personal opinions as to the advantages and/or disadvantages associated with the use of defeasance, as defined by SFAS No. 76. Also, any further comments about defeasance were requested on the reverse side of the questionnaire.

> Question 6. "What, if any, do you perceive to be the drawbacks of such an accounting technique as defeasance?"

Eight respondents answered this question, with most of them concerned with the "artificial income" that resulted from a defeasance transaction. Many responses referred to a "manipulation of earnings" that could occur since the debt was not legally satisfied. For example, a typical answer was, "It could cause companies to attempt to realize an accounting gain when there is no economic gain." Another respondent said, "[Defeasance] can encourage companies to make/take uneconomic decisions in order to realize cosmetic EPS [earnings per share] benefits."

The majority of respondents, however, expressed no drawbacks from the use of defeasance. This information, along with that obtained from question 3, tend to support the hypothesis that financial executives are favorably disposed to SFAS No. 76.

> Question 7. "What do you perceive to be the advantages of defeasance?"

Several respondents commented on the "economic reality" of the transaction, meaning that legally the obligation was not satisfied, but for all intents and purposes, discharge of obligations had occurred. As such, "It permits the company to disclose its true debt position."

Typical answers included: "reflects the reality of the situation," and "reflects the economic substance of the transaction." Further, a respondent stated, "[It gives the] ability to realize and record what has already occurred economically."

Another important advantage of defeasance is related to the flexibility gained when managing a firm's capital structure and long-term debt position. One respondent said, "[Defeasance gives] more flexibility in managing a company's capital structure and interest expense." Also, "[Defeasance] allows early retirement of debt at potentially lower costs than open market purchase, and allows change in the capital structure."

Basically, the majority of respondents felt that the use of defeasance not only brightened the financial statements, but also reflected the "economic reality" of the situation.

SUMMARY

Statement of Financial Accounting Standards (SFAS) No. 76 was issued by the Financial Accounting Standards Board (FASB) on November 29, 1983, in order to establish stated guidelines regarding use of an inventive debt-restructuring process known as "in-substance defeasance. Defeasance essentially involves the satisfaction of long-term debt by placing the debt and funds to retire the debt into a trust account.

This study was undertaken to present information regarding the acceptability and use of defeasance as a generally accepted accounting principle, as perceived by financial executives of selected major corporations in the United States.

Most of the respondents had not utilized defeasance prior to the Securities and Exchange Commission (SEC) moratorium issued in August 1982. In fact, only two respondents voted affirmative to this question. This figure was to be expected, however, due to the relative newness associated with defeasance. Thirty-six percent of the respondents were presently considering use of defeasance in the future. Three out of every four respondents indicated a favorable attitude toward the passage of SFAS No. 76 indirectly implying general approval of the current use of defeasance.

The majority of financial executives agreed that the current treatment of an early extinguishment of debt transaction reflected its real economic impact.

A conflict existed when reporting the result of a defeasance transaction between its inclusion as a separate component of income from continuing operations, footnote disclosure, and its inclusion as an extraordinary item. Fifty-four percent preferred the former treatment; 32 percent chose the latter. A major theme common to many responses, though, was the materiality of the gain or loss resulting from defeasance.

Respondents indicated "artificial income" resulting from its use, and the "manipulation of earnings" as potential disadvantages of defeasance. The respondents indicated that an advantage to defeasance was the fact that it reflected the "economic reality" of the transaction. Also, defeasance gave more flexibility in managing a firm's capital structure.

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[1] "Exxon's Clever Debt Swap," *Dun's Business Monthly*, CXX (August 1982), p. 21.

[2] *The Wall Street Journal*, 7 July 1982, p. 4, col. 2.

[3] "The Newest Way to Wipe Out Old Debt," *Business Week*. MMDCCLI (9 August 1982), pp. 65-66.

[4] "Exxon's Clever Debt Swap."

[5] "The Newest Way to Wipe Out Old Debt."

[6] "Extinguishment of Debt," *Statement of Financial Accounting Standards No. 76* (Stamford, Connecticut: FASB, November 1983).

[7] *The Wall Street Journal*, 13 August 1982, p. 5, col. 1.

[8] "Accounting and Auditing," *The CPA Journal* LIII (April 1983), pp. 86-87.

[9] *The Wall Street Journal*, 20 August 1982, p. 7, col. 1.

[10] "Accounting and Auditing."

[11] "Statement of Position—Accounting for Advance Refunding of Tax-Exempt Debt." *Journal of Accountancy*, CXXXXVI (October 1978), pp. 124-125.

[12] "Accounting and Auditing."

[13] *The Wall Street Journal*, 30 November 1983, p. 10, col. 3.

APPENDIX A

SURVEY QUESTIONNAIRE

1. Prior to the SEC moratorium issued in August, 1982, did your firm utilize defeasance?

______Yes ______No

2. Is your firm presently considering the use of defeasance in the future?

______Yes ______No

3. Do you agree with the decision made by the Financial Accounting Standards Board on defeasance?

______Strongly Agree
______Agree
______Neutral
______Disagree
______Strongly Disagree
______No Opinion

4. Do you agree that the financial reporting treatment of early debt extinguishment reflects its real economic impact?

______Strongly Agree
______Agree
______Neutral
______Disagree
______Strongly Disagree
______No Opinion

5. How do you feel the profit (loss) from defeasance should be shown?

______Separate component of income from continuing operations, footnote disclosure.
______Separate component of income from continuing operations, no disclosure.
______Extraordinary gain (loss).
______Other. (Please specify) ______________________________

6. What, if any, do you perceive to be the drawbacks of such an accounting technique as defeasance?

7. What do you perceive to be the advantages of defeasance?

If you wish to make any additional comments, please use the reverse side of this questionnaire.

APPENDIX B
SELECTED LIST OF COMPANIES SURVEYED

1. American Brands, Incorporated
2. American Home Products Corporation
3. Amsted Industries, Incorporated
4. Armco, Incorporated
5. Atlantic Richfield Company
6. Bangor Punta Corporation
7. Bell & Howell Company
8. Blue Bell, Incorporated
9. Bristol-Myers Company
10. Burroughs Corporation
11. Cameron Iron Works, Incorporated
12. Ceco Corporation
13. Champion Spark Plug Company
14. Clark Equipment Company
15. Colgate-Palmolive Company
16. Consolidated Foods Corporation
17. Adolph Coors Company
18. Cummins Engine Company, Incorporated
19. Datapoint Corporation
20. Dexter Corporation
21. Dover Corporation
22. E. I. Du Pont De Nemours
23. Eaton Corporation
24. Esmark, Incorporated
25. Farmers Union Central Exchange
26. Figgie International, Incorporated
27. Foster Wheeler Corporation
28. GAF Corporation
29. Gene[illegible]ic Company
30. Genera[illegible]ubber Company
31. Getty Oil Company
32. Gould, Incorporated
33. Gulf & Western Industries, Incorporated
34. Harris Corporation
35. Hershey Foods Corporation
36. Hoover Universial, Incorporated
37. INTERCO, Incorporated
38. Intel Corporation
39. Levi Strauss & Company
40. Lockheed Corporation
41. M/A-Com, Incorporated
42. The Marmon Group, Incorporated
43. Maytag Company
44. The Mead Corporation
45. Miles Laboratories, Incorporated
46. Monfort of Colorado, Incorporated
47. NCR Corporation
48. National Can Corporation
49. National Starch & Chemical Corporation
50. North American Philips Corporation
51. Oak Industries, Incorporated
52. Owens-Illinois, Incorporated
53. Palm Beach Incorporated
54. Pepsico, Incorporated
55. Phillips-Van Heusen Corporation
56. Prime Computer, Incorporated
57. Raychem Corporation
58. Revlon, Incorporated
59. A. H. Robins Company, Incorporated
60. SCM Corporation
61. Scott Paper Company
62. Sheller-Globe Corporation
63. Smithkline Beckman Corporation
64. Square D Company
65. Stanley Works
66. Storage Technology Corporation
67. Swift Independent Packing Company
68. Tenneco, Incorporated
69. The Timken Company
70. Tyco Laboratories, Incorporated
71. Union Pacific Corporation
72. United States Steel Corporation
73. Vulcan Materials Company
74. Warner-Lambert Company
75. Westvaco Corporation

SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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THE ARKANSAS ECONOMY: ARKANSAS PERSONAL INCOME

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In the period since 1978, Personal Income in Arkansas has increased from $13.5 billion to $24.0 billion, or in excess of 75 percent. However, over this same period the Consumer Price Index rose by 64.9 percent. Thus, while Arkansas' Personal Income rose by approximately $10.6 billion in nominal terms in seven years, the real dollar increase was only $1.1 billion in 1978 dollars. Adjusted for inflation, then, Personal Income increased by only 8.24 percent overall. This amounts to a real rate of annual growth in Personal Income of 1.14 percent (Table 1).

In the two years in which the national business cycle troughed (1980 and 1982) since 1978, Arkansas suffered real dollar declines in Personal Income of 4.6 percent and 0.9 percent, respectively. In this same period, the year in which the greatest absolute, as well as percentage, growth in real dollar Personal Income occurred was 1984. In that year, real dollar growth was 0.9 billion, or 6.8 percent. This is the same year in which inflation adjusted income surpassed the peak achieved in 1979.

Since at least the mid 1970s, changes in Arkansas Personal Income have followed closely the movements in the Gross National Product. Using that historical relationship and a forecast of the national economy from one of the leading econometric models, Arkansas Personal Income is projected to be $25.4 billion in 1986 and $27.1 billion in 1987. This same national model predicts the CPI will increase by 1.0 percent in 1986 and 2.2 percent in 1987 so that the projected real growth rates in Arkansas Personal Income are approximately 4.6 percent and 4.7 percent for 1986 and 1987, respectively. The quarter-by-quarter projection is presented in Table 2.

A word of caution, however, is in order concerning the projection. First, the statistical equation used in this process over-

TABLE 1
ARKANSAS PERSONAL INCOME
1978-1985

	Personal Income (Nominal Dollars) (millions)	CPI (1967 = 100)	Personal Income (1978 $'s) (millions)	Change (1978 $'s) (millions)	Percent Change (1978 $'s)
1978	$13,474	195.4	$13,474		
1979	15,066	217.4	13,541	+ 67	+0.5
1980	16,319	246.8	12,920	−621	−4.6
1981	18,416	272.4	13,210	+290	+2.2
1982	19,376	289.1	13,096	−114	−0.9
1983	20,531	298.4	13,444	+348	+2.7
1984	22,868	311.1	14,363	+919	+6.8
1985	24,048	322.2	14,584	+221	+1.5

estimated Arkansas Personal Income in the last three quarters of 1985. If this overestimation is recognized in the projection, the seasonally adjusted annual rate of growth becomes 5.6 percent for the first quarter of 1986, rather than 8.7 percent. Also, the forecast implies that Arkansas Personal Income will grow, in real terms, at rates at, or near, their peak levels since 1978. Conditions in Arkansas' agriculture and some manufacturing industries would seem to cast doubt on the economy's ability to achieve these rates of growth. Thus, it would seem prudent to suggest the forecast values contained in Table 2 be treated as upper bounds with somewhat higher probabilities that growth will be at a rate lower than those indicated.

TABLE 2
A FORECAST OF ARKANSAS PERSONAL INCOME
1986-1987
(SAAR)

		Personal Income		
Year	Quarter	Amount ($ millions)	Annual Rate of Change (Percent)	Change in the CPI (Percent)
1986	I	$24,788	8.7	-1.6
	II	25,142	5.8	-1.2
	III	25,560	6.8	1.2
	IV	26,055	8.0	2.1
1987	I	26,514	7.2	2.5
	II	26,948	6.7	2.7
	III	27,353	6.1	3.1
	IV	27,768	6.2	3.9

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force	Total Employment	Agricultural Employment	Manufacturing Wage and Salary Employment	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,016,100	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
1985*		1,051,080	960,100	46,250	210,317	8.6
	March	1,046,770	954,040	47,030	211,303	8.9
	April	1,045,370	952,760	46,960	207,542	8.8
	May	1,040,980	953,140	46,640	209,340	8.4
	June	1,041,820	956,860	46,370	209,270	8.5
	July	1,049,540	958,610	46,130	209,960	8.5
	Aug.	1,050,720	961,630	45,900	210,020	8.3
	Sept.	1,053,730	963,180	45,620	209,220	8.4
	Oct.	1,053,170	963,120	45,460	209,170	8.4
	Nov.	1,059,800	967,580	45,540	209,850	8.6
	Dec.	1,067,630	973,260	45,540	210,880	8.8
1986						
	Jan.	1,061,260	976,150	46,180	213,850	8.3
	Feb.	1,057,010	973,570	46,280	213,950	8.2
	March	1,052,430	970,200	46,310	214,220	7.9

*Note: Labor Force and Employment data for the period 1985 forward have been reestimated by the Employment Security Division. The reestimation resulted in relatively large revisions in Agricultural Employment, with revisions to a less degree in Total Employment and Civilian Labor Force data. Consequently, the data for 1985 forward are not comparable to that for the prior period.

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	+ 2.8	+ 2.5	+ 2.9	− 2.2	+ 0.2	+ 1.9
United States	+ 2.1	+ 1.6	+ 1.5	+ 1.0	+ 1.8	+ 1.7

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	12,790	14,640	15,892	17,862	19,191^{R}	19,957^{R}	22,406^{R}	24,310^{R}
Apr-Jun	13,206	14,774	15,851	18,078	19,155^{R}	20,383^{R}	22,410^{R}	23,784^{R}
Jul-Sep	13,798	15,208	16,527	18,811	19,344^{R}	20,612^{R}	23,041^{R}	23,820^{R}
Oct-Dec	14,102	15,640	17,005	18,912	19,812^{R}	21,173^{R}	23,614^{R}	24,277^{R}
Annual	13,474	15,066	16,319	18,416	19,376^{R}	20,531^{R}	22,868^{R}	24,048^{R}

^{R} = revised estimates (April 1986)

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	+ 0.5	+ 1.6	− 0.5	+ 0.8	+ 2.1
United States	− 0.6	+ 0.5	+ 0.3	+ 0.4	+ 0.5

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	5,222.6	5,902.0	6,553.6	7,167.6	7,474.8	7,898.0	8,868.1	9,367.6
Apr-Jun	5,427.4	6,052.2	6,415.0	7,388.1	7,569.1	8,147.1	8,993.1	9,322.3
Jul-Sep	5,547.7	6,135.9	6,688.3	7,601.8	7,581.8	8,419.3	9,116.7	9,398.2
Oct-Dec	5,638.0	6,299.6	6,942.7	7,589.5	7,746.9	8,529.2	9,218.7	9,600.0
Annual	5,458.9	6,097.4	6,649.9	7,436.8	7,593.2	8,248.4	9,049.2	9,422.0

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Arkansas	− 3.4	+ 4.5	+ 2.0	+ 3.4	+ 0.1	+ 7.1
United States	+ 1.8	+ 4.3	− 4.7	− 4.3	+ 0.1	NA

NA - not available

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	3,139,796	3,442,336	3,410,760	2,990,044	3,354,452	2,833,156	3,408,036	3,263,042^R
Apr-Jun	2,715,736	3,059,744	3,554,600	2,806,176	3,795,964	2,641,692	3,165,680	3,374,386^R
Jul-Sep	3,082,684	3,076,148	3,870,404	3,052,440	3,163,160	3,292,736	3,058,936	3,376,970^R
Oct-Dec	2,986,880	3,143,660	4,576,516	2,987,076	3,200,636	2,801,852	3,197,856	3,617,159
Annual	2,981,274	3,180,472	3,853,070	2,958,934	3,378,553	2,892,359	3,207,627	3,407,889

^{R} - revised

NA - not applicable

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1984 Q-II thru 1984 Q-III	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV
Total	− 4.2	− 5.7	− 19.1	+ 15.8	+ 12.6	− 22.4
Internal	− 14.0	− 16.7	− 21.6	+ 76.5	− 24.4	+ 9.1

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time Period	Traffic Tonnages			
	Inbound	Outbound	Internal	Total[1]
1979	2,026	3,456	2,932	8,926
1980	1,611	4,643	2,408	9,133
1981	1,564	5,684	1,741	9,446
1982	1,520	4,611	1,561	8,258
1983	1,918	3,905	1,904	8,017
1984	2,128	4,264	2,433	9,490
1985[2]	2,103	3,191	2,521	8,335
Jan-Mar	1,880	3,321	1,582	7,357
Apr-Jun	2,424	2,757	2,792	8,522
Jul-Sep	2,194	3,649	2,112	9,592
Oct-Dec	1,846	2,920	2,305	7,439

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	880,912	838,008	613,040	550,568	511,940	895,484	1,044,788	791,824^{R}
Apr-Jun	988,740	645,112	564,516	642,712	598,212	919,996	975,436	775,466^{R}
Jul-Sep	903,144	756,032	696,460	548,380	689,232	908,188	900,232	701,506^{R}
Oct-Dec	888,712	575,136	686,040	585,608	780,880	901,384	773,368	795,934
Annual	992,005	706,530	664,550	632,800	648,130	906,260	917,550	766,182

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1978	1979	1980	1981	1982	1983	1984	1985
Quarter								
Jan-Mar	314,489	371,300	289,236	356,916	376,064	269,324	417,860	368,124^{R}
Apr-Jun	228,472	420,520	349,804	278,808	210,008	353,504	437,076	411,933^{R}
Jul-Sep	383,588	296,012	396,316	259,592	317,844	389,684	543,684	477,483^{R}
Oct-Dec	262,064	441,984	390,148	311,048	220,548	473,460	481,360	563,974
Annual	292,842	381,809	355,100	302,100	279,600	370,100	467,700	455,378

^{R} - revised

LABOR FORCE ESTIMATES
March 1986, Not Seasonally Adjusted

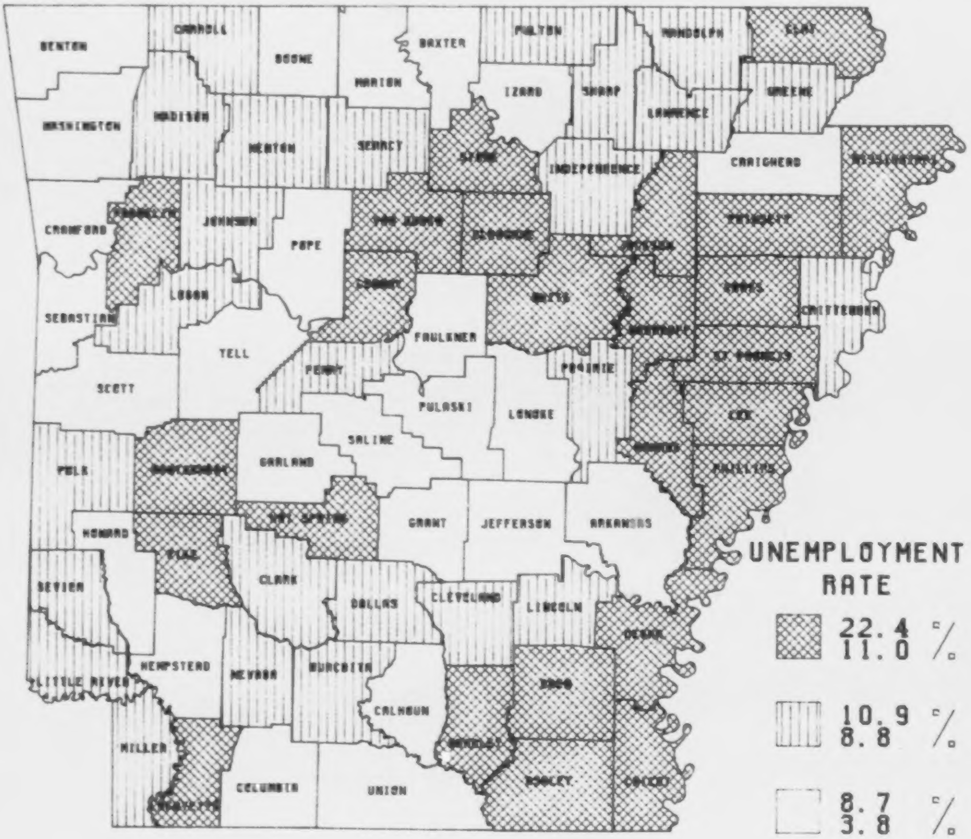
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	116,310,000	7.5	107,643,000
STATE OF ARKANSAS	1,043,600	8.6	954,000
Fayetteville-Springdale MSA	53,000	4.4	50,675
Fort Smith MSA	85,750	7.2	79,550
Little Rock-North Little Rock MSA	243,425	5.9	229,000
Pine Bluff MSA	35,850	7.5	33,175

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	9,725	8.7	8,875	Lee	4,625	16.8	3,850
Ashley	12,000	11.3	10,650	Lincoln	3,800	9.9	3,425
Baxter	9,925	5.3	9,400	Little River	5,200	10.1	4,675
Benton	43,000	4.3	41,150	Logan	8,450	8.9	7,700
Boone	13,500	7.0	12,550	Lonoke	18,400	7.2	17,075
Bradley	5,000	15.5	4,225	Madison	4,725	10.1	4,250
Calhoun	4,150	6.6	3,875	Marion	5,300	6.1	4,975
Carroll	9,225	9.5	8,350	Miller	18,675	8.8	17,025
Chicot	5,950	14.3	5,100	Mississippi	21,225	15.5	17,925
Clark	10,375	10.6	9,275	Monroe	4,450	11.8	3,925
Clay	8,025	15.0	6,825	Montgomery	2,900	13.8	2,500
Cleburne	7,525	11.0	6,700	Nevada	4,100	10.4	3,675
Cleveland	2,525	9.9	2,275	Newton	2,975	10.9	2,650
Columbia	12,300	8.5	11,250	Ouachita	13,250	10.2	11,900
Conway	7,600	11.2	6,750	Perry	3,925	9.6	3,550
Craighead	32,225	7.1	29,950	Phillips	10,950	16.4	9,150
Crawford	19,700	8.0	18,125	Pike	3,850	13.0	3,350
Crittenden	24,975	10.4	22,375	Poinsett	10,375	16.6	8,650
Cross	8,100	13.0	7,050	Polk	6,300	9.1	5,725
Dallas	4,125	9.7	3,725	Pope	20,675	7.6	19,100
Desha	6,925	12.3	6,075	Prairie	4,475	10.1	4,025
Drew	8,075	12.7	7,050	Pulaski	172,100	5.3	162,925
Faulkner	25,100	7.9	23,125	Randolph	6,925	10.5	6,200
Franklin	5,650	14.6	4,825	St. Francis	12,375	22.4	9,600
Fulton	3,600	10.4	3,225	Saline	27,825	7.0	27,825
Garland	31,625	8.6	28,900	Scott	5,275	3.8	5,075
Grant	5,525	8.1	5,075	Searcy	3,175	10.2	2,850
Greene	13,450	9.1	12,225	Sebastian	47,850	6.6	44,675
Hempstead	9,500	6.8	8,850	Sevier	6,525	9.6	5,900
Hot Spring	10,975	16.9	9,125	Sharp	5,450	9.2	4,950
Howard	5,750	7.4	5,325	Stone	3,800	11.2	3,375
Independence	14,850	10.3	13,325	Union	20,600	8.7	18,800
Izard	4,075	5.5	3,850	Van Buren	5,225	12.4	4,575
Jackson	8,575	15.5	7,250	Washington	53,000	4.4	50,675
Jefferson	35,850	7.5	33,175	White	23,525	12.1	20,675
Johnson	7,200	10.1	6,475	Woodruff	4,150	13.9	3,575
Lafayette	3,275	12.2	2,875	Yell	8,725	6.0	8,200
Lawrence	8,500	8.8	7,750				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
MARCH 1986

IN MARCH, ARKANSAS' CIVILIAN LABOR FORCE INCREASED 7,700 TO TOTAL 1,043,600. TOTAL EMPLOYMENT INCREASED 17,700 TO TOTAL 954,000. UNEMPLOYMENT FELL 10,000 TO TOTAL 89,600. OF THE 75 COUNTIES, SCOTT HAD THE LOWEST UNEMPLOYMENT RATE AT 3.8 PERCENT AND ST FRANCIS, THE HIGHEST AT 22.4 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 53 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.4 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 7.5 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH MSAS WERE 5.9 AND 7.2 PERCENT, RESPECTIVELY.


BENTON
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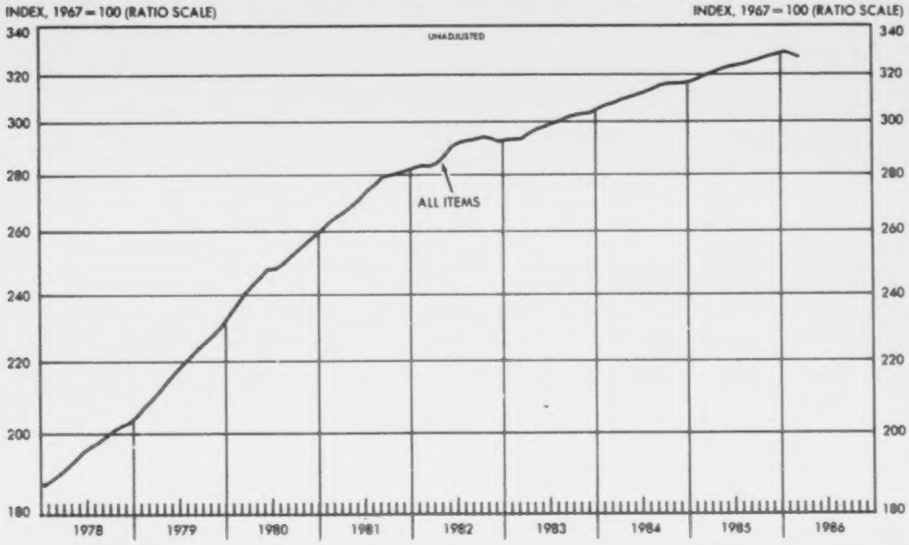
SHARP
LAWRENCE
GREENE
STONE
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
POPE
VAN BUREN
CLEBURNE
JACKSON
POINSETT
SEBASTIAN
LOGAN
CONWAY
WHITE
CROSS
CRITTENDEN
FAULKNER
WOODRUFF
ST FRANCIS
SCOTT
YELL
PERRY
PRAIRIE
PULASKI
LONOKE
LEE
MONROE
POLK
MONTGOMERY
GARLAND
SALINE
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
HOWARD
PIKE
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
DESHA
LITTLE RIVER
HEMPSTEAD
NEVADA
OUACHITA
CALHOUN
DREW
MILLER
BRADLEY
COLUMBIA
UNION
ASHLEY
CHICOT
LAFAYETTE
UNEMPLOYMENT RATE
▩ 22.4 11.0 %
▥ 10.9 8.8 %
☐ 8.7 3.8 %

CONSUMER PRICES—ALL URBAN CONSUMERS

In March, the consumer price index for all urban consumers fell 0.4 percent, seasonally adjusted (it fell 0.5 percent not seasonally adjusted). The index was 2.3 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items [1] NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
				Total [1]	Renters' costs (Dec. 1982 = 100)	Home-owners' costs (Dec. 1982 = 100)	Maintenance and repairs NSA								
Rel. imp. [3]	*100.0*	*18.5*	*37.9*	*22.3*	*7.3*	*14.4*	*0.5*	*8.1*	*5.0*	*21.4*	*3.4*	*5.5*	*6.5*	*11.3*	*48.0*
1978	195.4	211.4	202.8	210.4	....	....	233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7	....	....	256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7	....	....	285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7	....	....	314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0	....	....	334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1985: Mar	318.8	308.6	345.3	374.7	113.2	111.0	370.0	391.2	205.1	319.0	213.7	367.9	395.4	423.2	279.6
Apr	320.1	308.7	346.5	376.4	113.7	111.5	368.0	392.8	205.4	320.9	214.1	374.3	397.5	428.0	280.3
May	321.3	308.4	348.4	379.7	114.7	112.6	366.2	392.8	205.3	320.2	214.5	377.7	399.8	429.7	280.2
June	322.3	309.1	349.4	381.1	115.3	112.9	367.6	394.7	205.9	320.2	215.0	378.8	402.6	430.3	280.9
July	322.8	309.2	350.3	383.1	115.8	113.6	367.8	394.2	205.6	320.3	215.2	379.1	404.3	429.4	281.4
Aug	323.5	309.6	351.7	385.3	116.3	114.3	370.6	393.6	205.9	319.8	215.7	377.4	406.6	427.6	282.1
Sept	324.5	310.7	352.2	386.1	116.7	114.5	368.7	394.4	206.8	319.3	216.2	375.2	409.0	426.8	282.6
Oct	325.5	311.1	353.3	387.9	117.5	114.9	368.5	393.7	207.7	320.5	217.0	374.3	410.9	425.8	284.1
Nov	326.6	313.2	355.2	390.5	118.2	115.7	372.7	395.4	208.4	322.6	217.7	377.4	413.0	428.4	285.4
Dec	327.4	315.2	356.2	391.9	118.5	116.2	373.7	396.5	208.3	323.9	218.4	379.4	415.7	430.3	286.2
1986: Jan	328.4	315.9	357.1	393.3	118.8	116.6	379.1	397.2	207.7	325.5	218.6	380.1	417.5	430.8	287.5
Feb	327.5	313.8	356.8	394.8	119.2	117.0	379.6	392.4	206.6	320.9	219.5	357.2	420.4	414.3	288.0
Mar	326.9	314.1	357.5	397.3	119.8	118.0	367.5	388.4	206.3	311.8	219.9	314.8	424.5	387.5	288.6

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas, gas (piped) and electricity, and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1985.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

REVIEW EDITORIAL POLICY STATEMENT

The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

For a book: list (as appropriate) author's first name, middle initial, and surname; the title of the book; publication data including place, publisher, and date; and the page number(s) in the citation.

For an article in periodical: list (as appropriate) the author's first name, middle initial, and surname; title of the article; name of the periodical; volume number or month and year for the issue; and page number(s) in the citation.

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Arkansas Business and Economic Review

A Publication of the University of Arkansas

Volume 19, Number 2, 1986

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The Geographic Concentration of Service Industries in Arkansas

Economic Education: A Continuing Commentary

Selected Arkansas and U.S. Economic Indicators

EDITORIAL AND PUBLICATION INFORMATION

The *Arkansas Business and Economic Review* is published quarterly by the Bureau of Business and Economic Research as a public service and mailed on request without charge to addresses in the U.S. The Bureau is a division of the College of Business Administration, University of Arkansas, Fayetteville. The College is fully accredited by the American Assembly of Collegiate Schools of Business. The Bureau is a member of both the Association for University Business and Economic Research and The Travel and Tourism Research Association.

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Bureau of Business and Economic Research
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ARKANSAS ECONOMY PREDICTED BY AHRP TO STABILIZE

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INTRODUCTION

The Arkansas Household Research Panel (AHRP) collects data on a variety of economic, social, and attitudinal issues that impact on the lives of Arkansans. These data are collected quarterly and, in the past, have accurately reflected future Arkansas economic conditions.[1] The types of data panel members are asked to report, including family financial status, purchase intensions, and perceptions of Arkansas economic and business conditions, are examined for significant trends over both the short-run and the long-run.

Based on 1984 data, Darden, Dorsch and Alex accurately predicted the 1985 downturn in the Arkansas economy.[2] This downturn is likely to change as evidenced by an examination of recently collected data. Current panel data provide mixed signals with respect to the future economic conditions of Arkansas. Some indices, for example, support the notion of a continued downturn in the Arkansas economy, while others signal improvements in Arkansas' economic condition. Taken together, these indices suggest that the Arkansas economy is likely to stabilize, at least in the short-run. Table 1 contains data that support the proposed stabilization of the Arkansas economy.

OVERALL CONDITIONS

Table 1 (Indices By Quarter) shows the ten economic categories from which data are collected, on a quarterly basis, from

TABLE 1
INDICES BY QUARTER

	1984			1985				1986
Index	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4	QTR1
Family Fin. Status	1.07	.996	1.02	1.03	1.03	.973	.974	.981
Fut. Fam. Fin. Cond.	1.02	1.02	.993	.959	.986	.958	.983	.972
Current Bus. Cond.	1.21	1.01	1.04	.972	.999	.849	.894	.922
Short Run Bus. Cond.	1.01	.953	.981	.955	.985	.901	.925	.918
Long Run Fin. Status	.930	.931	.922	.921	.912	.887	.892	.906
Durable Goods Pur.	1.01	.937	.706	.727	.701	.727	.716	.700
Life Ins. Purchase	.969	.975	.980	.977	.969	.964	.998	.987
Real Est. Inv. Pur.	.917	.919	.915	.922	.923	.913	.921	.921
Stocks & Bonds Pur.	1.05	1.05	1.06	1.06	1.05	1.05	1.05	1.08
Home Purchase	1.01	1.02	1.01	1.03	1.02	1.02	1.03	1.03

the AHRP members. An examination of Table 1 reveals that seven indices took a downturn and one index moved upward during the third quarter of 1985. The fourth quarter, however, witnessed a reversal in that eight indices moved upward and one index moved downward. This reversal may be short-lived as the first quarter indices of 1986 provide evidence of a stabilizing period, with four indices moving upward and four indices moving downward. Further investigation of the data support the anticipated stabilization of the Arkansas economy.

FAMILY FINANCIAL STATUS

The general trend of the current family financial status of AHRP members suggests that, over the past year and a half, panel members are experiencing family financial statuses that are the "Same" or "Worse Off" than those of a year ago.[3] For example, the percentage of households who considered their current family financial status to be the "Same" as that of the previous year moved from 52.1% in the first quarter of 1985 to 54.8% in the second quarter of 1986. A similar increase was experienced by households who reported their current family financial status as "Worse Off" than that of the prior year. This percentage moved from 17.3% during the first quarter of 1985 to 19.6% during the second quarter of 1986.

Further, given the similarity of trends between "Expected" and "Actual" family financial status, it is reasonable to suggest that the forecasted family financial status is a good indicator of the direction of the anticipated actual family financial status.[4] Thus, in the future, the percentage of Arkansans whose future family financial status is likely to be "Better Off" is predicted to stabilize in the short-term. In addition, the percentage of Arkansans who are likely to report their family financial status as remaining the "Same" is forecasted to increase, while the percentage of Arkansans who are predicted to report their actual family financial status as "Worse Off" will likely remain relatively stable. Taken together these trends suggest that the Arkansas economy will stabilize over the short-run.

INTENTIONS TO PURCHASE

As part of the survey conducted by the AHRP, consumers are requested to provide information on their intentions to purchase a variety of products. These products (Durable Goods in Table 2, Life Insurance in Table 3, Stocks, Bonds and Mutual Funds in Table 4, Real Estate Investments in Table 5, and Intentions to Purchase a Home in Table 6) were chosen because of their diversity and representation of an "active" economy. Each Table's data is separately analyzed below.

Examination of Table 2, Intentions to Purchase Durable Goods, suggests that the Arkansas economy is likely to grow slowly. This prediction is supported by the small percentage of AHRP members who reported, continuously over the past six quarters, that it is a "Good Time to Buy." In addition, during the same period, the number of Arkansans who reported that now is a "Bad Time to Buy" remained relatively constant. Further, the number of households reporting, during the 1985-1986 time frame, that their members are unsure of their intentions to purchase durable goods increased slightly. These trends can be interpreted as reflecting Arkansans uncertainty about the future as well as signaling a period of stabilization. Thus, it is likely that growth of the Arkansas economy will slow slightly to reflect the cautiousness of Arkansans toward the purchase of durable goods over the next twelve months.

The percentage of AHRP members who are considering the purchase of life insurance in the short term witnessed a slight increase over the past six quarters. Examination of Table 3 suggests that, during

TABLE 2
INTENTION TO PURCHASE DURABLE GOODS

Month	Year	Good Time To Buy (%)	Don't Know Depends (%)	Bad Time To Buy (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	46.3	46.8	6.9	1.034	1.201
Jun	84	43.4	48.7	7.9	1.009	1.173
Sep	84	34.1	54.7	11.2	0.937	1.121
Jan	85	10.4	44.1	45.5	0.706	0.828
Mar	85	10.0	51.8	38.2	0.727	0.845
Jun	85	8.9	45.3	45.8	0.701	0.815
Sep	85	8.9	53.8	37.3	0.727	0.869
Jan	86	8.3	51.5	40.2	0.716	0.839
Mar	86	8.5	46.0	45.5	0.700	0.814

TABLE 3
INTENTION TO PURCHASE LIFE INSURANCE (WITHIN 12 MONTHS)

Month	Year	Good Time To Buy (%)	Don't Know Depends (%)	Bad Time To Buy (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	3.2	5.7	91.1	0.973	0.989
Jun	84	2.2	6.7	91.1	0.969	0.986
Sep	84	3.5	5.7	90.8	0.975	0.996
Jan	85	4.2	5.8	90.0	0.980	0.993
Mar	85	3.4	6.7	89.9	0.977	0.994
Jun	85	2.0	7.0	91.0	0.969	0.985
Sep	85	2.2	5.1	92.7	0.964	0.985
Jan	86	4.1	11.1	84.8	0.998	1.011
Mar	86	5.0	6.3	88.7	0.987	1.004

the 1985-1986 time frame, panel members have gradually increased their consideration to purchase life insurance during the next year. Arkansans who thought it a "Good Time to Buy" life insurance increased from 4.2% in the first quarter of 1985 to 5.0% in the second quarter of 1986. In addition, Arkansans who may purchase life insurance over the next year increased from 5.8% in the first quarter of 1985 to 6.3% in the second quarter of 1986. This trend supports the notion that Arkansans are unsure of the future of the Arkansas economy.

AHRP members, in addition to considering the purchase of life insurance within the next year, have also increased their consideration of the purchase of stocks and bonds. Table 4 shows that, during the past year and a half, the number of Arkansans who both plan to buy and may purchase stocks and bonds have increased. Arkansans who plan to buy stocks and bonds during the next year increased slightly from 19.6% in the first quarter of 1985 to 20.4% in the second quarter of 1986. Further, the percentage of households who may purchase stocks and bonds over the next year increase from 21.4% to 24.4% during the same period. This trend is likely to be related to the strong market for stocks and bonds existing during this time frame.

Arkansans are also considering the purchase of real estate for investment purposes. Table 5 shows that intentions to invest in real estate increased, during the 1985-1986 time frame, for those in the plan to buy category. AHRP members who plan to buy real estate within the next twelve months increased from 2.0% in the first quarter of 1985 to 3.9% in the second quarter of 1986. Further, Arkansans who are undecided with respect to investing in real estate decreased from 18.7% to 16.8%, while those who don't plan to buy remained relatively constant. These trends suggest that Arkansans who were considering the purchase of real estate for investment purposes are planning to take advantage of the low mortgage rates.

In addition to the increased interest in the purchase of real estate for investment purposes, Arkansans also increased their consideration of purchasing a home. An examination of Table 6 reveals that, during the 1985-1986 time period, AHRP members have increased both their plans to buy as well as their consideration of a home purchase. Arkansans who "Plan to Buy" increased from 3.4% in the first quarter of 1985 to 4.8% in the second quarter of 1986. Further, panel members who may buy a home during the next year increased from 10.3% to 12.2%. This trend suggests that Arkansans plan to take advantage of the low mortgage rates.

Given the general trend towards increased intentions to purchase a home, it is interesting to note the quarterly change between the first and second quarters of 1986. A comparison of the two 1986 quar-

TABLE 4
INTENTION TO PURCHASE STOCKS, BONDS, MUTUAL FUNDS, ETC. (WITHIN 12 MONTHS)

Month	Year	Good Time To Buy (%)	Don't Know Depends (%)	Bad Time To Buy (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	18.9	20.4	60.7	1.053	1.068
Jun	84	18.2	20.9	60.9	1.049	1.005
Sep	84	17.8	22.1	60.1	1.051	1.012
Jan	85	19.6	21.4	59.0	1.064	1.025
Mar	85	18.3	22.9	58.8	1.059	1.074
Jun	85	18.1	21.3	60.6	1.050	1.006
Sep	85	18.1	21.1	60.8	1.049	1.010
Jan	86	18.4	20.6	61.0	1.050	1.012
Mar	86	20.4	24.4	55.2	1.084	1.100

TABLE 5
INTENTION TO PURCHASE REAL ESTATE FOR INVESTMENT (WITHIN 12 MONTHS)

Month	Year	Good Time To Buy (%)	Don't Know Depends (%)	Bad Time To Buy (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	3.0	18.2	78.8	0.920	0.954
Jun	84	2.8	17.7	79.5	0.917	0.960
Sep	84	3.5	17.0	79.5	0.919	0.968
Jan	85	2.0	18.7	79.3	0.915	0.961
Mar	85	3.0	18.8	78.2	0.922	0.956
Jun	85	3.1	18.9	78.0	0.923	0.967
Sep	85	2.2	17.9	79.9	0.913	0.962
Jan	86	3.8	17.1	79.1	0.921	0.968
Mar	86	3.9	16.8	79.3	0.921	0.955

TABLE 6
INTENTION TO PURCHASE A HOME (OR RENTAL)

Month	Year	Plan To Buy (%)	Maybe Depends (%)	Do Not Plan To Buy (%)	Index
Mar	84	3.2	13.8	83.0	1.026
Jun	84	2.0	10.5	87.5	1.005
Sep	84	3.3	12.1	84.6	1.020
Jan	85	3.4	10.3	85.9	1.012
Mar	85	4.1	13.5	82.4	1.031
Jun	85	3.1	13.0	83.9	1.022
Sep	85	3.4	11.0	85.6	1.017
Jan	86	5.2	12.5	82.3	1.032
Mar	86	4.8	12.2	83.0	1.026

ters shows that percentages of panel members in both categories, "Plan to Buy" a home and "Maybe, Depends," decreased slightly. One explanation for this decrease is that consumers who previously thought that earlier periods were good times to purchase a home took advantage of concurrently low interest rates. Therefore, the pool of available consumers in this category would be reduced proportionately. Thus, home purchases are likely to be sensitive to cyclical factors.

A comparison of Tables 2, 3, 4, 5, and 6 suggests that Arkansans are intending to purchase life insurance, stocks, bonds, mutual funds, real estate and homes rather than durable goods. This trend indicates that the Arkansas economy is likely to remain relatively stable as Arkansans shift their purchase intentions.

BUSINESS CONDITIONS AND IMPLICATIONS

Consumers visualize business conditions as improved compared to last year. For example, compared to a year ago, 23.5% of the consumers surveyed believe that business conditions have improved. In contrast, 48.4% of the consumers believe conditions are the "Same," and 28.1% of the consumers suggest that business conditions have deteriorated. (This category is down from 31.9% and 37.8%, respectively, as reported in the past two quarters.)

In projecting business conditions for the next twelve months, see Table 7, the vast majority of consumers (75.5%) believe that businesses will experience "Good and Bad Times," and 10.9% of the respondents believe that "Bad Times" are all that businesses can anticipate within the next year. This is the second quarter in a row that the "Bad Times" category has declined.

In viewing the long-term (5 years, Table 8), once again, most respondents (83.4%) believe that businesses can expect "Good and Bad Times" over the next years. When this category is combined with "Good Times" (which represents 11% of the consumers), 94.4% of the panel members currently believe that the Arkansas economy will experience both "Good Times" and "Good and Bad Times" during the next five years. This response suggests that no particularly large growth or decline is projected by panel members in the economy during this period.

The overall forecast of the AHRP members suggests a "stabilizing" period in Arkansas in the near future. If this consumer prediction is correct, it appears that businesses could profit during this period by operating at levels which allow for moderate operations. Even in those situations where expansion is merited, these findings seem to indicate that it would generally

TABLE 7
BUSINESS CONDITIONS FOR THE NEXT 12 MONTHS IN ARKANSAS

Month	Year	Good Times (%)	Good and Bad Times (%)	Bad Times (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	20.9	75.2	3.9	0.990	1.151
Jun	84	24.3	72.5	3.2	1.013	1.212
Sep	84	19.1	71.7	9.2	0.953	1.081
Jan	85	20.6	74.1	5.3	0.991	1.135
Mar	85	16.1	78.1	5.8	0.955	1.111
Jun	85	21.4	73.2	5.4	0.985	1.178
Sep	85	12.4	74.0	13.6	0.901	1.021
Jan	86	15.5	73.2	11.3	0.925	1.070
Mar	86	13.6	75.5	10.9	0.918	1.068

TABLE 8
ARKANSAS ECONOMY FOR THE NEXT 5 YEARS

Month	Year	Good Times (%)	Good and Bad Times (%)	Bad Times (%)	Base Year 1978 Index	Seasonal Adj. Index
Mar	84	13.0	83.6	3.4	0.926	1.025
Jun	84	15.0	80.4	4.6	0.930	1.026
Sep	84	15.7	79.2	5.1	0.931	1.021
Jan	85	13.5	81.7	4.8	0.922	1.022
Mar	85	12.9	82.8	4.3	0.921	1.020
Jun	85	13.2	80.3	6.5	0.912	1.006
Sep	85	10.4	80.3	9.3	0.887	0.972
Jan	86	10.1	82.1	7.8	0.892	0.989
Mar	86	11.0	83.4	5.6	0.906	1.003

be unwise to anticipate an extremely large increase in consumer purchasing or business activity over the long run.

SUMMARY

The Arkansas Household Research Panel is a consumer panel which surveys consumers on a quarterly basis concerning a variety of economic, social, and attitudinal issues. As part of this process, panel members are routinely questioned about their opinions concerning specific economic projections within the state of Arkansas.

After analyzing the most recently available data, it appears that panel members are predicting that the Arkansas economy, in the near future, will go through a stabilization period. During this time, growth of expenditures on certain items is expected, while the overall business climate remains consistent with the current economic condition of the state.

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[1] William R. Darden and Theodore C. Alex, "January Indicators Suggest Recovery in Arkansas for 1983," *Arkansas Business and Economic Review*, Vol. 16 No. 1, 30-35.

[2] William R. Darden, Michael J. Dorsch and Theodore C. Alex, "AHRP Panel Indicators Suggest Mild Downturn in Arkansas Economy," *Arkansas Business and Economic Review*, Vol. 17 No. 4, 23-34.

[3] Additional details available from the Bureau of Business and Economic Research.

[4] Ibid.

THE INFLUENCE OF DROUGHT ON THE SUCCESS OF THE PAYMENTS-IN-KIND (PIK) PROGRAM

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U.S.D.A.'s Payment-In-Kind Program has been a dramatic success in bringing supply and demand into closer balance and has already helped bring a turnaround in farm prices and the farm economy.—John Block[1]

INTRODUCTION

By now it should be quite obvious to all observers of the United States economy that the farm sector has been suffering in recent years. In fact, the farm economy has been in a severe recession for five years as evidenced by high bankruptcy rates. Furthermore, according to the financial community the delinquency rate on farm mortgages is up more than 100 percent over the last five years.[2] "In Arkansas alone, the Farmers Home Administration, the big bad wolf of agriculture, had $951 million outstanding in farm loans in early 1984. Arkansas also had a delinquency rate of 30 percent as of September 30, 1984."[3] According to the U.S. Department of Agriculture net farm income for 1982 was at $22.3 billion. By 1983 net farm income had fallen to $16.1 billion in current dollars.[4] These are the lowest real farm incomes since the 1930s.

The ultimate causes of the declining farm incomes were record harvests combined with weakened demand conditions. The weakened demand was primarily of an export nature caused by "a sluggish world economy, strong U.S. dollar, increased competition from other exporting nations and better productivity in importing countries. ... Some 60 percent of the decline, says USDA, can be traced to curtailed buying by the Soviet Union, Eastern Europe and China."[5]

Obviously there was increasing pressure for economic help for the farm sector. The farm problem and the policies to alleviate it were not new, however. The U.S. government has actively pursued agricultural policies since the turn of the century.

HISTORICAL CAUSES OF THE FARM PROBLEM

Farmers in the U.S. have traditionally sought 100 percent parity pricing as a basis for agricultural policy. Parity as a term relates back to the golden age of farming (1910-14). The parity ratio is a price index relating prices received by farmers to prices paid by farmers.

$$\text{Parity ratio} = \frac{\text{Prices received by farmers}}{\text{Prices paid by farmers}}$$

Historically the farm sector experienced high prices and incomes for the first two decades of the twentieth century. The 1920s were depression years for agriculture and the situation worsened during the 1930s. World War II returned prosperity to farming but with the exception of 1973-75 the post war period has seen farm incomes losing relative to non-farm incomes.

The causes of the farm problem are based upon rather simple economic principles concerning the general farm products market. First, the elasticity of demand with respect to price is quite low. In other words, the quantity of food demanded does not vary significantly with variations in the price.

$$\eta^d_p = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

$$\text{and } 0 > \eta^d_p > -1$$

Furthermore, the elasticity of demand with respect to income is also low. The market demand for food will not shift out dramatically with changes in income.

$$\eta^d_y = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in income}}$$

$$\text{and } 0 < \eta^d_y < 1$$

Explanation of the conditions of market supply are just as simple. First, the elasticity of supply is quite low. The quantity supplied is relatively insensitive to price changes since farmers really have little control over their output.

$$\eta^s_p = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$$

$$\text{and } \eta^s_p < 1$$

Second, the major technological advancements in agriculture have shifted the market supply of farm products outward rather drastically, an example would be the post World War II increase in corn yields.

With these simple concepts in mind the farm problem can easily be shown graphically. Starting from an initial equilibrium of price OP_t and quantity OQ_t in Figure 1 the above mentioned conditions would indicate that supply would shift out to S_{t+1} from S_t due to technological change while demand shifts to D_{t+1} from D_t due to increases in income through time. The outward shift in supply is greater than that of demand. The end result from the outward shifts would be a lower total revenue for the farm sector since at the new equilibrium $OP_t\ OQ_t > OP_{t+1}\ OQ_{t+1}$. This analysis is relative, of course, to other goods and services. With adjustments in the general price level the prices of farm products exhibited a general downward trend to 1973. These falling prices created the declining incomes suffered by individuals in agriculture. After 1973 the prices received by farmers have increased but by much less than the prices paid by farmers such that the parity ratio has declined significantly. Net profits have accordingly declined which has resulted in higher bankruptcies and lowered prices for agricultural land.

Agriculture Policies

Government policies to deal specifically with the farm problem have involved three general areas: (1) price support policies, (2) supply control policies and (3) demand policies. Figure 2 graphically displays the concept of price support policy. The equilibrium price is OP_e and equilibirum quantity is OQ_e with total revenues of $OP_e\ OQ_e$. If the government deems this to be an inadequate income level then one method of raising the revenues to the farm sector is to increase the price of the product being sold. The government does this by setting a support price of OP_s above the equilibrium price of OP_e. At the support price OP_s society buys OQ^d_s but the farmers supply OQ^s_s. This produces a surplus equal to the difference $OQ^s_s - OQ^d_s$ which the government must buy at the support price. The farm sector receives an income equal to $OP_s\ OQ^s_s$ which is significantly higher. The problem is the initial cost to the government of purchasing the surplus plus the additional costs of storage which exceeded one billion dollars in certain years.

Agriculture policies were also developed to help eliminate surpluses. One method was to increase the demand for agricultural products through efforts like the food-stamp program and Public Law 480 which lets developing countries use their own currencies to purchase U.S. farm output instead of dollars. These demand enhancement programs are represented in Figure 3. The outward shift in demand from D_t to D_{t+1} brings about both a higher equilibrium price OP'_e and quantity OQ'_e. The end result is once again higher incomes for farmers as OP'_e OQ'_e OQ'_e > OP_e OQ_e.

The major agriculture policy designed to help cut agricultural surpluses have been efforts to restrict the supply of output. Figure 4 depicts this type of policy. Acreage restrictions are imposed to shift the supply curve from S_t backward to S_{t+1}. The resulting equilibrium price of OP'_e is therefore higher than previously OP_e. The equilibrium quantity is also less OQ'_e versus OQ_e but the elasticity coefficients are such that the increase in price more than offsets the decrease in quantity such that farm incomes are increased OP'_e OQ'_e > OP_e OQ_e. The PIK program is an example. Farmers are paid to restrict output not in cash but instead with surplus crops which the government is already storing.

Recent Farm Policies

In 1973 Congress enacted the Agriculture and Consumer Protection Act in reaction to the greatly increased prices and incomes of the farm sector which resulted primarily from increased foreign demand. This act allowed farm prices to change freely with change in supply and demand. It established "target" prices which were below existing prices of 1973 yet above historic equilibrium prices. Bumper crops in 1976 and 1977 proved disasterous to farm incomes and congress reacted with a new farm program in 1977. The Food and Agricultural Act contained flexible price and income supports. As farm incomes continued to fall in the 1980s, increased efforts were made to limit output. The Reagan administration's program was payments-in-kind (PIK).

The PIK Program

Payments-in-kind as a program is not new. The Roosevelt Administration offered government-held cotton to cotton growers in 1933 in efforts to reduce production. The 1960s saw a similar program for surplus feed grains but on a very small scale. The PIK program of the Reagan Administration went into effect in March of 1983 and was much larger in scope than its predecessors. In size "The Secretary of Agriculture originally estimated that PIK would idle about 23 million acres over and above the land already taken out of production by the existing acreage-reduction program. The actual figure is likely to be closer to 55 million acres—almost 2½ times the initial projection."[6] The Department of Agriculture also estimated that the cutback reduced wheat production by 20 percent and corn production by 30 percent. This meant a decrease in government spending on loans, storage, and price supports of roughly $1 billion for 1983 and $5 billion in fiscal 1984 below the levels that would have occurred in the absence of PIK.

The Effectiveness of PIK

John Block, Secretary of Agriculture was the champion of the PIK program. As the opening quote indicates, he believed it has been a remarkable success. He further stated "the current drought has influenced judgments made by the media on the PIK program."[7] The rest of this paper is devoted to analysis of the impact of the drought on the effectiveness of the PIK program. In other words has the PIK program really been that effective in solving the farm problem or has the turnaround in the farm economy been based upon weather conditions instead. The media did appear to emphasize the drought.[8]

Winter Wheat

First, the authors would like to examine the market conditions for winter wheat. Obviously the winter wheat crop of 1982 was planted prior to the institution of the PIK program in mid-March of 1983. However, wheat farmers were given the option of participating in the program by not harvesting the existing crop in return for payments-in-kind.

As can be seen in Table 1, the wheat farmers took advantage of the PIK program and actually harvested 18.6 percent less acreage in 1983 than the average for 1981 and 1982. However, as most individuals would expect, the acreage not harvested was the least productive. For this reason and good weather, the actual acres which were harvested had a higher yield. Since yields have continued to increase even more since 1983 it must be concluded that the weather was the more important factor. As can be seen the yields increased by 16.1 percent. The net result of the PIK program from the decreased acreage of 18.6 percent was a decline in production of only 5.4 percent. It would be difficult to describe a 5.4 percent reduction of winter wheat production from the PIK program as constituting "a dramatic success in bringing supply and demand into closer balance,"[9] particularly when one considers the magnitude of the total production.

THE EXTENT AND SIGNIFICANCE OF THE DROUGHT OF SUMMER 1983

A major development occurred between the winter wheat harvest and the corn for grain harvest which had severe repercussions on agriculture for 1983. Spring of 1983 was relatively wet across the United States east of the rockies. The crop-moisture index through June 18, 1983 indicated adequate moisture conditions except for west Texas. At the same time temperature departures from normal were negative east of the Rockies except for the northeast.

Around July 5, 1983, the moisture and temperature situation began changing dramatically. Anticyclonic circulation developed over both the mid-continent region and the southeast. By July 16 slight to moderate soil-moisture deficiencies appeared in the central interior and the Southeast. Throughout July and early August increased temperatures developed over the eastern United States intensifying a developing drought situation. In mid-August the crop-moisture index reached severe to extreme soil moisture deficien-

TABLE 1
WINTER WHEAT-UNITED STATES

	1981	1982	1983	Percent Change 1983 vs. Mean 1981-1982 Value
Area Harvested (1,000 acres)	58,647	58,487	47,686	−18.6
Yield (bushels/acre)	35.9	36.1	41.8	+16.1
Total Production (1,000 bushels)	2,103,538	2,111,806	1,993,888	− 5.4

Source: Crop Production 1983 Summary, Crop Reporting Board, Statistical Reporting Service, U.S. Department of Agriculture, Washington, D.C., January 1984.

cies in the southeast and moderate to severe deficiencies in the cornbelt region. At the same time temperature departures reached 12° F above normal in the core of the cornbelt severely stressing corn in both regions.

The soil moisture situation reached severe to extreme deficiencies in several climatic divisions in the cornbelt area by mid-September while the situation improved slightly in other areas. Temperature departures remained above normal through September, and both temperature and soil moisture conditions improved considerably by mid-October. As a result of severe moisture stress coupled with high temperature departures from normal, the corn crop was lost in some regions and yields lowered considerably in others.

Corn for Grain

Table 2 presents the data for corn for grain in the U.S. for 1981, 1982 and 1983. The difference for corn and for wheat is readily apparent. The acreage harvested declined 30.2 percent for corn which is a greater decline than experienced by wheat. However, some of the decline in corn acreage harvested is attributed to the drought and not to PIK since some of the drought stricken acres went unharvested due to the loss of the crop and not due to non-planting.

The second and major difference is reflected in the yield figures. Winter wheat yields increased 16.1 percent as only the least productive acreages were removed from production. Corn for grain however displays a different pattern as the 1983 yield was 27.2 percent lower than the average for 1981 and 1982. Since one must assume that corn farmers removed their least productive acres the decline in yields is of major importance since it occurred on the highest productive lands. The net result of corn for grain in the U.S. for 1983 with respect to total production was a decrease of 49.2 percent from 1982-83 levels. This almost 50 percent decline was caused by both decreased acreage harvested and decreased yields.

SUMMARY AND CONCLUSIONS

Through a comparison of winter wheat and corn for grain production in the United States the authors contend that the PIK program has not been the success claimed by the administration. The drought conditions on the farm had at least as much impact on output as the PIK. This conclusion is based upon the analysis of the difference between wheat and corn conditions from 1981 and 1982 and the post PIK year of 1983. The analysis concerned area harvested, yield, and total

TABLE 2
CORN FOR GRAIN-UNITED STATES

	1981	1982	1983	Percent Change 1983 vs. Mean 1981-1982 Value
Area Harvested (1,000 acres)	74,700	73,030	51,537	−30.2
Yield (bushels/acre)	109.8	114.5	81.6	−27.2
Total Production (1,000 bushels)	8,201,598	8,359,364	4,203,777	−49.2

Source: Crop Production 1983 Summary, Crop Reporting Board, Statistical Reporting Service, U.S. Department of Agriculture, Washington, D.C., January 1984.

production. For wheat there was an increase in yield, as measured by bushel per acre, of approximately 16 percent from the 1981-82 mean and 1983. Total production for winter wheat fell by 5.4 percent due to a decrease in acrea harvested. The effect is associated with the PIK program but a decline of 5.4 percent can not be considered a major impact when one considers the imbalance which existed in the winter wheat market. The corn for grain situation was somewhat different. The area harvested declined significantly (by over 30 percent). But in the case of corn the yield in bushel per acre declined by 27.2 percent. Since one should have expected the corn yield to increase as it did for winter wheat one must conclude that the effect of drought was of major significance in the corn market. To claim that the decrease in production was the result of the PIK program is incorrect.

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[1] U.S. Department of Agriculture, "Block Says PIK Has Turned Around Farm Prices, Economy," News Release, August 30, 1983.

[2] Morgan Guaranty Trust Company, "Money Harvest," The Morgan Guaranty Survey, June 1983, p. 4.

[3] Arkansas Democrat, "Ransom of American Farmers More than $7 Million," September 29, 1985, p. 4E.

[4] U.S. Department of Agriculture, Statistical Reporting," 1984 Agricultural Statistics for the United States," July 1985.

[5] Barron's "Corn is Hot-Weather Market," July 18, 1983, p. 18.

[6] Morgan Guaranty Trust Company, "Money Harvest," The Morgan Guaranty Survey, June 1983, p. 4.

[7] U.S. Department of Agriculture, "Block Says PIK Has Turned Around Farm Prices, Economy," New Release, August 30, 1983.

[8] Wall Street Journal, "Major Boom in Corn, Soybeans Lift Profits of Traders and Brokers," September 31, 1983, p. 1; Wall Street Journal, "Midwest Drought May Frustrate Efforts to Cut Farm-Price Supports, August 26, 1983.

[9] U.S. Department of Agriculture, "Block Says PIK."

A COMPARATIVE LOOK AT SOCIALLY ORIENTED MUTUAL FUNDS

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INTRODUCTION

One of the major problems for small investors who seek virtue with their cash continues to be the determination of which companies are socially oriented.[1] One way in which growing numbers of ethical investors are easing this judgmental burden is by considering the so-called socially oriented mutual funds.[2] While these funds are not new, most of the growth has taken place since 1982.

Socially oriented mutual funds pool investors' money to buy portfolios for specific purposes. When fund managers start a fund they define its purpose and describe it in the fund's prospectus. Mutual funds are not allowed to change investment objectives without shareholder consent. In addition to this security that the fund will likely remain committed to its socially oriented ends, mutual funds offer several other advantages. These include diversification by allowing the investor to own an interest in a greater variety of securities than most individuals can afford and the opportunity for professional management of the investor's assets at a relatively low cost. Also, liquidity may be greater and transaction costs lower than with a diversified individual portfolio.

By defining a mutual fund as socially oriented is not stating that other funds are not socially oriented. Instead, it simply means that a socially oriented fund has its social orientation as one of the objectives stated in its prospectus.

There are two major categories of funds: open-end and closed-end. Open-end funds are those which issue as many shares as are demanded by investors wanting to invest their money. Closed-end funds generally issue a fixed number of shares and investors will buy and sell these shares just as they would common stock of a corporation. The closed-end funds (most of which do not appear to invest along socially oriented guidelines as described above) trade in major stock exchanges and in the over-the-counter market.

Open-end funds can be further classified as either load funds or no-load funds. No-loads are sold through the mail directly by the fund itself, while load funds carry a sales commission—usually 8.5% of the investment—most of which goes to the broker who sells the fund. Some funds charge low load fees ranging from 1% to 3% while others exact more. There is no evidence that load funds (on the average) outperform no-loads. However, in a few cases, superior performance by the load fund can make up for the sales charge. Many funds have a minimum **initial** investment of as little as $250, so individuals with even small amounts of money can assemble a portfolio.

When looking for a fund with a socially oriented investment objective, much of what the investor needs to know is listed in the fund's prospectus. Currently, there are five mutual funds whose prospectuses clearly state investment philosophies tied in with socially responsible ideals. These five funds are: Calvert Social Investment Fund, Dreyfus Third Century Fund, New Alternative, Parnassus Fund, and Pax World Fund. The five funds along with additional data about each fund are listed in Table 1.

General Comparison

Processing transactions is expensive for any mutual fund. Therefore, all mutual funds will place a minimum on initial investments and subsequent investments. The minimum investment amounts are listed in Table 1. The smallest minimum investment is $250, by the Pax World Fund. The largest is $5,000 for the Parnassus Fund. It is important to note that the funds with large initial investments do accept IRA and Keogh investors. The high and the low subsequent investment amounts are $1,000 and $50 by the Parnassus Fund and Pax World, respectively.

Another important criterion for an investor to consider is the presence of a load charge. If a load charge is 6%, then only 94% of the investor's money is actually invested. Only the New Alternative Fund and the Parnassus Fund have load charges (of 6% and 3.5% respectively). It should be noted that the load charge fee can be less for these two funds when the amount of the investment is large.

Another charge often levied on mutual

TABLE 1
COMPARISON OF THE MUTUAL FUNDS

	Calvert Social Investment Fund	Dreyfus Third Century Fund	New Alternative	Parnassus Fund	Pax World Fund
Minimum Investment*					
Initial	$1,000	$2,500	$2,650	$5,000	$250
Subsequent	$ 250	$ 100	$ 500	$1,000	$ 50
Manager	Calvert Asset Mgt.	Dreyfus Corp.	Accrued Equities Inc.	Parnassus Finan. Mgt.	Pax World Mgt.
Load Charge	None	None	6%	3.5%	None
Redemption Charge	None	None	None	None	None
Advisory Fee**	0.5%-0.7%	0.75%	1/12 of 1%	1%	None
Family of Funds	Yes	Yes	No	No	No
Prospectus Date	1/1/85	10/1/84	8/31/84	1/17/85	4/25/84
Date Established	Oct. '82	March '72	Sept. '82	Jan. '85	Dec. '71

*Generally varies for Keogh or IRA contributions.
**Monthly unless otherwise indicated.

fund investors is a redemption fee—a charge made by the fund when the investor withdraws money. None of the funds in Table 1 has a redemption fee.

All mutual funds must charge a management or advisor's fee. It is used to pay the salaries and business expenses of the fund's management. The two funds that have load charges deduct only 1/12 of 1% of the fund's net asset value per month. This is fairly modest. The no-load funds (as they are charging less up front) tend to have higher management fees ranging from 0.5% to 0.75% of the fund's net asset value.

Finally, many mutual funds operate as a family of funds. In other words, a single management group may operate several different funds with varying investment strategies. Generally, investors may move from fund to fund within the family. Calvert Social Investment Fund and the Dreyfus Third Century Fund are part of mutual fund families. Belonging to a family can be beneficial for investors who desire to move in and out of certain kinds of investments.

INVESTMENT CRITERIA COMPARISON

Initially an attempt was made to summarize the social selection criteria of the five funds. However, each fund states its criteria in its own way. Therefore, in Tables 2 to 6 the investment philosophies of the five funds have been presented, where possible, in the words from each fund's prospectus. No attempt was made to judge which philosophy is "better." To do so implies judgment and opinion. However, the philosophies are categorized. The philosophies of the funds can be positive or negative. Positive implies that the fund looks for certain kinds of companies in which to invest, while negative indicates the fund avoids certain types of investments.

The Calvert Social Investment Fund's philosophy is presented in Table 2. The Fund's philosophy is both positive and negative. There are four goals dealing with product safety, management participation, labor relations and creativity. The negative aspects deal with avoiding investments in companies that produce nu-

TABLE 2
CALVERT SOCIAL INVESTMENT FUND

Social Selection Criteria

The fund has developed the following criteria for the selection of organizations in which it invests. The fund seeks to invest in a producer or service provider which:

1. Delivers safe products and services in ways that sustain our natural environment.
2. Is managed with participation throughout the organization in defining and achieving objectives.
3. Negotiates fairly with its workers; provides an environment supportive of their wellness; and provides opportunities for women, disadvantaged minorities and others for whom equal opportunities have often been denied.
4. Fosters awareness of a commitment to human goals, such as creativity, productivity, self-respect, and responsibility, within the organization and the world, and continually recreates a context within which these goals can be realized.

The Fund will not invest in an issue primarily engaged in:

1. The production of nuclear energy or the manufacture of equipment to produce nuclear energy.
2. Business activities in South Africa.
3. The manufacture of weapons systems

clear power, do business in South Africa or build weapons.

The Dreyfus Third Century Fund's criteria shown in Table 3 is positive in nature. Dreyfus attempts to find companies that "enhance the quality of life in America." They find companies investing in "health, housing, education or transportation."

The New Alternative Fund's strategy shown in Table 4 takes a positive approach. This fund attempts to locate alternate energy investments that are "environmentally sound."

The Parnassus Fund also takes a positive approach to security selection. The management has identified "five qualitative factors" that govern security selection. These are shown in Table 5. The five areas entail product quality, customer orientation, community sensitivity, treatment of employees and ability to innovate.

Pax World Fund's philosophy is shown in Table 6. Its primary focus is negative, avoiding defense, liquor, tobacco, and gambling securities. However, from a positive aspect it searches for companies with fair employment practices and pollution control policies.

As seen above, the strategies of these

TABLE 3
DREYFUS THIRD CENTURY FUNDS

Social Selection Criteria

"The Fund's primary goal is to provide capital growth through equity investment in companies which, in the opinion of the Fund's management, not only meet traditional investment standards but which show evidence in the conduct of their business, relative to other companies in the same industry, of contributing to the enhancement of the quality of life in America." (p. 3).

"A company which has developed, or is actively engaging in developing, technology, products or services relative to the four areas of special concern or relative to the fields of health, housing, education or transportation, and which, in the opinion of management, will contribute to enhancement of the quality of life in America, will be declared eligible for investment by the fund regardless of performance in the four areas of special concern." (p. 4).

The Fund compiles statistics on equal employment opportunities, occupational health, product safety and environmental protection and ranks companies against their competitors.

TABLE 4
NEW ALTERNATIVE FUND

Social Selection Criteria

"The primary objective of the fund is long term growth through investing in common stocks of companies in the solar and alternative energy industry. There is no certainty that this fund will achieve this objective." (p. 5).

"The Fund's Directors believe that the fund will be served economically by the need to focus on investments which appear to be environmentally sound." (p. 7).

Industries in which to invest:

1. Illustration Photovoltaic (Solar Cell)
2. Conservation
3. Architectural
4. Natural Gas
5. Biomass
6. Hydroelectric
7. Additional solar and geothermal

TABLE 5
THE PARNASSUS FUND

Social Selection Criteria

The Parnassus Fund has three basic criteria for security selection. The third one deals with social responsibility.

3. "The issues must have, in the Advisor's judgment, enlightened and progressive management." (p. 2).

The prospectus later defines "five qualitative factors" that constitute "enlightened and progressive management."

"1. The quality of the company's products and services;
2. the degree to which the company is marketing-oriented and stays close to the customer;
3. the sensitivity of the company to the communities where it operates.
4. the company's treatment of its employees; and
5. the company's ability to innovate and respond well to change." (p. 2).

The Fund allows a portion of the investor's income to be withheld and donated to non-profit corporations.

TABLE 6
PAX WORLD FUND

Social Selection Criteria

"*Social Criteria of Portfolio*: The Fund seeks investment in companies that are not to any degree engaged in manufacturing defense or weapon-related products. The Fund excludes from its portfolio securities of companies: 1) engaged in military activities, as defined below; 2) appearing on the Department of Defenses' 100 largest contractor's list; 3) other companies contracting with the Department of Defense if 5% or more of their gross sales were derived from such contracts; 4) engaged in liquor, tobacco and gambling industries. In addition, the Fund will seek out companies with fair employment and pollution control policies and practices, and invest in some international development." (p. 3).

The Fund allows a portion of the investor's income to be voluntarily donated to the Pax World Foundation.

socially oriented mutual funds vary. This is not surprising since the term "social responsibility" means different things to different people.

INVESTMENT PERFORMANCE

Even if an investor is able to find a socially oriented mutual fund with investment objectives similar to his or her own, the investor still faces a second big problem. How does the selected fund perform? Do funds with a social conscience outperform the market, or at least not underperform it?[3]

There are many publications which rate mutual funds and rank them based on their overall performance over short as well as long time periods. Examples include *Money, Forbes, Lipper Analytical Services, Weisenberger Investment Company, United Mutual Fund Selector*, and *Financial World*. Investors can identify the best performing mutual funds which match their investment objectives.

Table 7 shows the ten best and the ten worst performing funds of 1984, as well as the ten best and the ten worst performing funds based on a recent five-year history. Among the winners in both categories, only one fund appears: Vanguard Quali-

TABLE 7
THE WINNERS AND LOSERS AMONG MUTUAL FUNDS*

1984's Best Performances

Through Nov. 30	Total Return
Prudential-Bache Utility	+33.93%
Vanguard Qualified Dividend 1	20.49
Copley Tax-Managed	20.30
Franklin Utilities	18.50
Energy & Utilities Shares	18.16
American Telecomm.-Income	17.98
Fidelity Qualified Dividend	17.97
Sequoia Fund	17.37
Fidelity Select Portfolios-Utilities	16.75
Composite Income	16.21
Median of 650 funds	0.76

The Best Five-Year Showings

Nov. 30, 1979, Through Nov. 1984	Total Return
Fidelity Magellan	+323.94%
Lindner Dividend	246.16
Lindner Fund	226.16
Phoenix Stock	215.16
American Capital Pace	210.34
Vanguard Qualified Dividend 1	207.54
Phoenix Growth	203.39
United Vanguard	197.11
Lehman Capital Fund	191.07
Loomis-Sayles Capital	187.01
Median of 451 funds	85.68

1984's Worst Performances

Through Nov. 30	Total Return
44 Wall Street	−61.09%
44 Wall Street Equity	−45.94
Hartwell Leverage	−36.50
Aggressive Growth Shares	−34.04
United Prospector	−31.03
First Investors Discovery	−29.66
Finomic Investment	−29.00
Directors Capital	−28.97
Value Line Special Situations	−28.42
First Investors Fund for Growth	−27.73

The Worst Five-Year Showings

Nov. 30, 1979, Through Nov. 30, 1984	Total Return
Directors Capital	−71.21%
44 Wall Street	−50.55
First Investors Natural Resources	−17.63
Beacon Income	−16.33
American Investors	−4.81
Steadman American Industry	+2.33
Sierra Growth	17.39
Sherman, Dean	20.95
American Heritage	23.11

*Source: *Business Week*, Dec. 31, 1984, p. 112.

fied Dividend 1. Among the losers in both categories, two funds appear: 44 Wall Street and Directors Capital.

As for the socially oriented funds, none appears either in the winners or the losers category. Three of the five funds have been in existence for only about 2 years and very little performance data is available for reporting purposes. Generally, however, the financial records of socially responsible funds appear to be mixed. For example in 1983, Calvert (+ 11.28) Dreyfus (+ 19.78) and Pax World (+ 24.17) all earned a positive return and Pax World even did slightly better than the Standard & Poor's 500 stock index (+ 22.59). For the year ending March 1, 1985, *Money* reported that Calvert ranked 40th among growth funds (out of 148 funds examined), Dreyfus ranked 41st out of the same group of growth funds, and Pax World ranked 2nd among balanced funds (out of 16).[4]

CONCLUSIONS

Socially oriented mutual funds are not a panacea. They do not necessarily earn a return higher than what an individual investor can do himself. There is no guarantee that funds which did well last year will do well this year, so it is hard to identify winners consistently. Many funds have hidden charges (such as redemption fees and loads) which are applied subsequent to purchase and which an individual investor may not be aware of. This makes it difficult to compare the "true" performances of all the mutual funds. Mutual funds are not a medium of investment for speculators (i.e., those who trade frequently). They are also not appropriate as a medium of investment for those expecting **spectacular** increases in values as is possible in holdings of common stock of firms.

But for those investors who refuse to separate their personal standards from their investments and who do not have the time to find companies which meet their own personal definition of social orientation, the return may not be so important. Most, however, would prefer an investment with both high standards and financial quality. For many, socially oriented mutual funds may be ideal. The bottom line for socially conscious funds is no different from that for other investments: ultimately, it is performance. People may want their money to do good, but everybody wants good financial returns.

It should be reiterated that mutual funds without socially oriented objectives are not necessarily "unethical" nor are investors "unethical" who invest in such funds. However, some investors choose to make ethics the key factor in their investment decision. The socially oriented mutual funds provide a vehicle for these investors.

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[1] M. Moskowitz, "Investors who seek Virtue with their Cash," *Business and Society Review*, 39. (1984), pp. 33-39.

[2] A.L. Domini and P.D. Kinder, *Ethical Investing*, (Reading, Mass.: Addison - Wesley, 1984).

[3] Moskowitz, pp. 33-39.

[4] "The Money Rankings of Mutual Funds," *Money*, April, 1985, pp. 159-194.

THE MARKET BEHAVIOR OF ARKANSAS ELECTRIC UTILITIES

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INTRODUCTION

Public utility regulation has become a major issue in state politics. Steadily increasing rates for electrical service has aroused the ire of consumers who have been accustomed to the stable rate structures of years past. Popular local initiatives in several states have outlawed utility charges for construction work in progress and eliminated or reduced automatic fuel adjustment increases. Anti-utility populism was a factor in recent gubernatorial victories in several states.

There is concern by many that accelerating public utility rates have a disproportionate impact on the poor, the elderly, and those on fixed income and raise the specter of a public utility system which prices a large segment of the population out of the market, creating a "disconnected" underclass. In several states, grassroots groups have worked to place public utility commissioners on the ballot, making them directly answerable to the electorate and, it is presumed, more sensitive to rate increases. However, a public policy of rate suppression could be counter-productive. Artificially low rates can restrict capital improvement, reduce the quality of service, and hinder a state's ability to attract new investments, jobs, and tax revenue. Rate suppression may inhibit investment in the industry and increase the cost of debt and equity capital.

The Supreme Court in its landmark decision, the Federal Power Commission v. Hope Natural Gas, established the legal standard for regulating public utilities. This decision stated that public utility returns should be commensurate with those of other firms of similar risk. Attempts to meet the standard resulted in many public service commissions allowing witnesses to introduce the Capital Asset Pricing Model (CAPM) in state regulatory proceedings. Thirty-eight states have used or were considering using the CAPM in regulatory proceedings.

APPLICABILITY

The CAPM states that a securities return should be a linear function of its beta, the index of nondiversifiable risk. The equation for the CAPM can be written as:

$$E(R_i) = RF + [E(R_m) - RF]B_i$$

where $E(R_i)$ = the expected return on security i, RF = the risk free rate of interest, $E(R_m)$ = the expected return on the market, and B_i = the beta of security i which is an index of its systematic or nondiversifiable risk.

The most important factor in the application of the CAPM is the estimation of the market model and an ex ante estimate of beta. Beta coefficients are estimated from a historical time series, least squares of the form:

$$R_{i,t} = a_i + b_i R_{m,t} = e_{i,t}$$

where $R_{i,t}$ = the ex post monthly returns on the ith security, and $R_{m,t}$ = the ex post monthly returns on the Standard and Poors 500.

In regulated industries the investor's expected return on a security is a function of the rate base and the "fair rate of return" established by regulators. If beta coefficients are unstable over market cycles then regulators, investors, utilities, and the consuming public can justifiably criticize a rate structure which utilizes the CAPM method. A substantial body of empirical research has addressed the issue of stationarity in estimated beta coefficients.[2]

Evidence suggests considerable unexplained variation in moving from historical to future betas. Hagerman[3] argued that public utility betas are more stationary, but Bey[4] in a comprehensive study found them to be no more or less stationary than the betas of other securities. Brigham and Crum[5] and others have suggested that research should try to identify the economic explanations for non-stationarity in public utility betas.

Fabozzi and Francis[6] tested the hypothesis that market cycles contributed to beta non-stationarity and concluded that most stock betas were not affected by bear and bull markets. Their findings suggest a strong cross-cyclical relationship in the market index and individual security returns.

Roll and Ross[7] have argued that public utilities respond to a different pattern of factors than those implicit in the S&P 500 and other broad-based indices which are largely composed of nonregulated service and manufacturing firms. They argue that the CAPM systematically underestimates the cost of equity capital for public utilities. Stability of market model Ordinary Least Squares (OLS) coefficients over bull and bear markets would require that a strong bivariate cyclical relationship exists between public utility returns and the market index. Also, Ross had earlier presented an alternative to the CAPM in his "Arbitrage Pricing Theory."[8]

This paper will examine the cyclical behavior of the market model for investor-owned electric utilities operating in Arkansas. The statistical procedure used is cross-spectral analysis. There are four investor-owned electric utilities under the jurisdiction of the Arkansas Public Service Commission: Southwestern Electric Power Company; Oklahoma Gas and Electric Company; Empire District Electric Company; and Arkansas Power and Light which is a subsidiary of Middle South Utilities. The market index as well as monthly returns for each of the electric utilities for a period averaging twenty-five years were taken from the CRSP tape.

SPECTRAL ANALYSIS

Univariate spectral analysis studies the cyclical behavior of a time series. The cyclical nature of each stock return series is described by the power spectrum. Peaks in the power spectrum are interpreted to represent hidden cycles. For example, a hypothetical time series such as the one appearing in Figure 1 would indicate that the series is cycling at a forty-month frequency. None of the Arkansas utilities nor the market index exhibited a well defined cycle. The power spectra of all time series simply decayed moving from short to long cycles. This result is interpreted to mean that the market cycles of these time series are too irregular to be defined in a precise fashion. However, even though individual cycles are highly irregular, estimated OLS beta coefficients could still be stable if the two time series have a high degree of co-

Figure 1

Hypothetical Power Spectrum

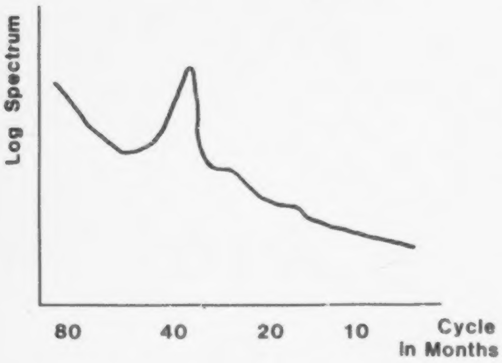
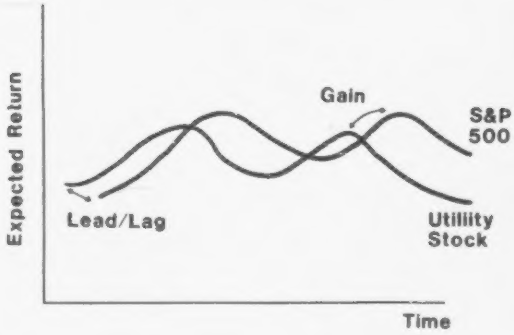


Figure 2

Cross-Spectral Illustration



movement. The co-movement between two time series can be analyzed using cross-spectral analysis. An intuitive explanation of cross-spectral analysis is exhibited in Figure 2. Cross-spectral analysis allows the researcher to compare the amplitude of the rate of return on an individual public utility stock to the amplitude of the rate of return on the S&P 500 whether the two time series exhibit regular or irregular cycles. This cross-cyclical relationship between two time series is described by coherence, gain, and phase statistics (Appendix 1).

Coherence and gain statistics for Arkansas electric utilities and the market index appear in Table 1. The cross-cyclical relationship would be characterized as weak. Coherence was low for most cycles and gain statistics were unstable and appeared to follow no discernible pattern. When coherence is low, the lead/lag relationship is contradictory; therefore, no attempt was made to discern the lead/lag.

TABLE 1

			Coherence			
Cycle in Months	13	65	40	24	16	7
Middle South	.19	.19	.24	.42	.43	.21
Southwestern	.05	.21	.28	.35	.36	.09
Oklahoma G & E	.46	.45	.39	.31	.40	.10
Empire District	.28	.38	.42	.36	.37	.05
			Gain Statistic			
Cycle in Months	130	65	40	24	16	7
Middle South	.55	.57	.65	.71	.67	.91
Southwestern	.17	.37	.45	.53	.62	.55
Oklahoma G & E	.68	.67	.63	.64	.77	.55
Empire District	.77	.82	.83	.58	.60	.42
			Value Line Beta			
Middle South	.70					
Southwestern	.60					
Oklahoma G & E	.65					
Empire	.60					

CONCLUSIONS

Application of the Capital Asset Pricing Model in state regulatory proceedings requires stability of OLS estimates of beta coefficients. Unless there is a shared cyclic component in the market model, beta estimates over bear and bull markets will vary. This research has determined that the market cycles for the S&P 500 and Arkansas investor owned electric utilities are irregular in nature. Furthermore, the cross-cyclical relationship between Arkansas electric utilities and the market index is very weak. Consequently, beta coefficients over irregular cycles will likely be unstable as well CAPM estimates of the fair rate of return on equity capital that is used to formulate the rate structure. Certainly, Arkansas public utility regulators, as well as regulators in other states, would be well advised to exercise caution in the application of the CAPM in state regulatory proceedings. As an alternative to the CAPM in public utility regulation, the authors suggest a multi-index model such as Ross's Arbitrage Pricing Theory in which the market index has no special role.

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[1] The authors wish to thank the Bureau of Economic Research at the University of Arkansas and the Fogelman Summer Research Program at Memphis State University for their support.

[2] Gordon J. Alexander and P. George Benson, "More on Beta as a Random Coefficient" *Journal of Financial and Quantitative Analysis* Vol. XVII. No. 1, March 1982, pp. 27-36; also, T. Bos and P. Newbold, "An Empirical Investigation of the Possibility of Stochastic Systematic Risk in the Market Model" *Journal of Business* Vol. 57 No. 1, 1984, pp. 35-41.

[3] Robert L. Hagerman, "Finance Theory in Rate Hearings" *Financial Management* Spring 1976, pp. 18-21.

[4] Roger P. Bey "Market Model Stationarity of Individual Public Utilities" *Journal of Financial and Quantitative Analysis* Vol. 18, No. 1, 1983, pp. 67-83.

[5] Eugene F. Brigham and Roy L. Crum, "On the Use of the CAPM in Public Utility Rate Cases" *Financial Management* Summer 1977, pp. 7-15.

[6] Frank J. Fabozzi and Jack Clark Francis, "Stability Tests for Alphas and Betas Over Bull and Bear Market Conditions" *The Journal of Finance* Vol. XXXII. No. 4, September 1977, pp. 1093-1099.

[7] Richard Roll and Stephen Ross, "Regulation, the Capital Asset Pricing Model and the Arbitrage Pricing Theory" *Public Utilities Fortnightly*, May 26, 1983, pp. 12-19.

[8] Stephen Ross, "Arbitrage Theory of Capital Asset Pricing" *Journal of Economic Theory*, Vol. 8, 1976, pp. 341-360.

APPENDIX 1

Spectral analysis provides a means of examining the frequency domain of a stationary or a nonstationary time series, breaking the series down into its cyclic components. Through a Fourier transform, the time series is actually decomposed into a set of sinusoidal waves of different frequencies. These waves are described by:

a) Frequency: the fraction of a cycle completed in one period.
b) Amplitude: the height of the wave.
c) Phase shift: the fraction of a cycle that the wave displaces from zero.

The ratio of the amplitudes is the gain statistic and is analogous to ordinary least squares beta coefficients. Spectral analysis also calculates the proportion of the variation in the cyclical amplitude of an individual stock's return that is explained by the variation in the market index return. This measure is the coherence statistic and is analogous to the R^2 measure in regression. As with the R^2 in regression, the lower the coherence, the less reliable are other cross-spectral statistics. Finally, spectral analysis identifies the lead/lag or phase relationship between the market index and the individual stock series. If a strong, shared cyclic component exists between public utilities and the market index, then the coherence should be high. When two time series do not conform to white noise, they may exhibit spurious coherence. Consequently, a threshold coherence of .50 is often established as a level indicative of a shared cyclic component. The power spectrum of two time series may peak at the same cycle and the two series may still have a low coherence. Alternatively, two time series may have difference cycles but still have a high coherence. Readers interested in a more rigorous treatment of spectral analysis are referred to Gottman[1] and Rayner.[2]

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[1] John M. Gottman, *Time Series Analysis*, Cambridge University Press, Cambridge, 1981.

[2] James Rayner, *An Introduction To Spectral Analysis*, Pion Limited, London, 1971.

THE GEOGRAPHIC CONCENTRATION OF SERVICE INDUSTRIES IN ARKANSAS

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Despite the limitation that while data from the 1982 Census of Service Industries are largely confined to those firms subject to the Federal Income Tax, they are indicative of the geographic concentration of the service industries within Arkansas. Firms in Pulaski County account for 33.5 percent of the total receipts ($2.2 billion) of the service industries in 1982, with Little Rock itself accounting for over one-fourth of the state total. (Tables 1 and 2).

Based upon receipts, over 50 percent of the Arkansas service industry activity is concentrated in four counties: Pulaski, Sebastian, Garland and Washington. Over 75 percent of the service activity is contained within less than 20 percent (14) of Arkansas' counties. On the other extreme, ten counties (Marion, Calhoun, Woodruff, Fulton, Prairie, Sharp, Lincoln, Searcy, Madison, Scott, Cleveland and Perry) account for a combined 1 percent of all services industry receipts.

With respect to Hotels, Motels, and other Lodging places (SIC 70) Little Rock firms had receipts of $25,117,000 in 1982, or 14.1 percent of the state total of $178,622,000. Hot Springs was second in this industry with total receipts of $21,834,000. These cities were followed by North Little Rock ($9,919,000), Fort Smith[1] ($7,791,000), Fayetteville ($6,437,000), Pine Bluff ($5,661,000) and Jonesboro ($4,331,000). In the aggregate, these seven cities accounted for 45.4 percent of the Arkansas total in that year.

In excess of 50 percent of the receipts of Automotive Repair Services and Garage (SIC 75) is concentrated in three Arkansas counties. With a 1982 industry total of $220,642,000, Pulaski County has $83.3 million, or 37.8 percent, and was followed by Sebastian County ($26.8 million) and Washington County ($11.1 million).

Firms located in Garland County had over 23 percent ($30.9 million) of the total receipts ($129.9 million) of Arkansas firms classified as Amusement and Recreation Services including Motion Pictures (SICs 78 and 79). Pulaski County was second with $23.7 million, followed by Crittenden County with $16.6 million. Together, firms in these three counties had 54.8 percent of the state total in 1982.

Health Services, except hospitals, (SIC 80 except 806) had receipts of $795,240,000, or 36.5 percent of the total for all Arkansas service industries in the census year. Firms in Pulaski County, with receipts of $224.6 million, accounted for 28.2 percent in this SIC category. Receipts in five counties (Pulaski, Sebastian - $73.6 million, Washington - $38.7 million, Jefferson - $37.4 million, and Garland - $35.6 million) accounted for 51.5 percent of the state's total. The combined receipts of sixteen counties provided over 75 percent of the total for Arkansas, with Independence County accounting for the smallest total ($9.5 million) in this group.

Legal Services (SIC 81) is the smallest industry, in terms of receipts, for which local data are available. Total receipts for all firms in Arkansas were $139.4 million in 1982, with firms in Pulaski County providing 41.3 percent ($57.5 million) of the total. The second highest receipts, $11.4

TABLE 1

COUNTIES RANKED BY VOLUME OF RECEIPTS OF FIRMS SUBJECT TO FEDERAL INCOME TAX: 1982

[Includes only establishments with payroll. For meaning of abbreviations and symbols, see introductory text. For explanation of terms and comparability of 1977 and 1982 censuses, see appendix A. For information on geographic areas followed by Δ, see appendix F]

Geographic area	Rank[1]	Receipts ($1,000)	Cumulative	
			Receipts ($1,000)	Percent of State total
Arkansas	(X)	2 177 408	2 177 408	100.0
Pulaski	1	730 251	730 251	33.5
Sebastian	2	185 329	915 580	42.0
Garland	3	124 135	1 039 715	47.8
Washington	4	104 505	1 144 220	52.5
Jefferson	5	82 724	1 226 944	56.3
Craighead	6	77 724	1 304 668	59.9
Benton	7	61 528	1 366 196	62.7
Union	8	53 348	1 419 544	65.2
Crittenden	9	52 137	1 471 681	67.6
Pope	10	39 378	1 511 059	69.4
Miller	11	36 156	1 547 215	71.1
White	12	34 438	1 581 653	72.6
Mississippi	13	32 154	1 613 807	74.1
Faulkner	14	27 760	1 641 567	75.4
Baxter	15	27 166	1 668 733	76.6
Boone	16	24 692	1 693 425	77.8
Columbia	17	23 366	1 716 791	78.8
Saline	18	23 217	1 740 008	79.9
Independence	19	21 759	1 761 767	80.9
Ouachita	20	20 043	1 781 810	81.8
St. Francis	21	19 040	1 800 850	82.7
Crawford	22	18 509	1 819 359	83.6
Greene	23	18 367	1 837 726	84.4
Phillips	24	17 661	1 855 387	85.2
Lonoke	25	16 790	1 872 177	86.0
Jackson	26	15 461	1 887 638	86.7
Arkansas	27	15 427	1 903 065	87.4
Hempstead	28	14 938	1 918 003	88.1
Cleburne	29	14 198	1 932 201	88.7
Carroll	30	13 716	1 945 919	89.4
Clark	31	12 983	1 958 902	90.0
Hot Spring	32	10 440	1 969 342	90.4
Ashley	33	9 579	1 978 921	90.9
Sevier	34	9 370	1 988 291	91.3
Cross	35	8 943	1 997 234	91.7
Arkansas—Con.				
Desha	36	8 294	2 005 528	92.1
Conway	37	8 130	2 013 658	92.5
Little River	38	7 699	2 021 357	92.8
Chicot	39	7 697	2 029 054	93.2
Howard	40	7 558	2 036 612	93.5
Van Buren	41	7 251	2 043 863	93.9
Johnson	42	7 114	2 050 977	94.2
Bradley	43	6 760	2 057 737	94.5
Drew	44	6 645	2 064 382	94.8
Clay	45	6 596	2 070 978	95.1
Lawrence	46	6 563	2 077 541	95.4
Polk	47	6 425	2 083 966	95.7
Yell	48	5 937	2 089 903	96.0
Logan	49	5 743	2 095 646	96.2
Monroe	50	5 590	2 101 236	96.5
Poinsett	51	5 245	2 106 481	96.7
Dallas	52	4 812	2 111 293	97.0
Franklin	53	4 466	2 115 759	97.2
Randolph	54	4 346	2 120 105	97.4
Montgomery	55	4 336	2 124 441	97.6
Nevada	56	4 086	2 128 527	97.8
Lafayette	57	3 858	2 132 385	97.9
Izard	58	3 751	2 136 136	98.1
Lee	59	3 741	2 139 877	98.3
Stone	60	3 199	2 143 076	98.4
Grant	61	3 007	2 146 083	98.6
Newton	62	2 939	2 149 022	98.7
Pike	63	2 911	2 151 933	98.8
Marion	64	2 790	2 154 723	99.0
Calhoun	65	2 779	2 157 502	99.1
Woodruff	66	2 500	2 160 002	99.2
Fulton	67	2 479	2 162 481	99.3
Prairie	68	2 376	2 164 857	99.4
Sharp	69	2 254	2 167 111	99.5
Lincoln	70	2 212	2 169 323	99.6
Searcy	71	2 201	2 171 524	99.7
Madison	72	2 119	2 173 643	99.8
Scott	73	1 984	2 17[illegible] 627	99.9
Cleveland	74	1 044	2 176 671	100.0
Perry	75	737	2 177 408	100.0

[1] Counties with suppressed receipts (if applicable) are listed at end of table rather than by rank to avoid disclosing data for individual companies.

TABLE 2

PLACES WITH 2,500 INHABITANTS OR MORE RANKED BY VOLUME OF RECEIPTS OF FIRMS SUBJECT TO FEDERAL INCOME TAX: 1982

[Includes only establishments with payroll. For meaning of abbreviations and symbols, see introductory text. For explanation of terms and comparability of 1977 and 1982 censuses, see appendix A. For information on geographic areas followed by Δ, see appendix F]

Geographic area	Rank[1]	Receipts ($1,000)	Cumulative	
			Receipts ($1,000)	Percent of State total
Arkansas	(X)	**2 177 408**	**2 177 408**	**100.0**
Little Rock	1	579 820	579 820	26.6
Fort Smith	2	181 573	761 393	35.0
Hot Springs	3	118 070	879 463	40.4
North Little Rock	4	97 942	977 405	44.9
Pine Bluff	5	73 651	1 051 056	48.3
Jonesboro	6	69 982	1 121 038	51.5
Fayetteville	7	67 483	1 188 521	54.6
West Memphis	8	48 209	1 236 730	56.8
El Dorado	9	46 505	1 283 235	58.9
Russellville	10	37 512	1 320 747	60.7
Texarkana	11	35 353	1 356 100	62.3
Rogers	12	32 348	1 388 448	63.8
Springdale	13	31 934	1 420 382	65.2
Searcy	14	29 179	1 449 561	66.6
Conway	15	25 827	1 475 388	67.8
Harrison	16	23 151	1 498 539	68.8
Blytheville	17	22 900	1 521 439	69.9
Magnolia	18	21 821	1 543 260	70.9
Mountain Home	19	20 847	1 564 107	71.8
Batesville	20	19 534	1 583 641	72.7
Arkansas—Con.				
Benton	21	19 047	1 602 688	73.6
Paragould	22	17 586	1 620 274	74.4
Jacksonville	23	17 328	1 637 602	75.2
Forrest City	24	16 316	1 653 918	76.0
Newport	25	14 729	1 668 647	76.6
Van Buren	26	13 827	1 682 474	77.3
Camden	27	13 089	1 695 563	77.9
Helena	28	11 151	1 706 714	78.4
Hope	29	10 930	1 717 644	78.9
Bentonville	30	10 255	1 727 899	79.4
Stuttgart	31	10 251	1 738 150	79.8
Heber Springs	32	10 028	1 748 178	80.3
Malvern	33	9 986	1 758 164	80.7
De Queen	34	9 121	1 767 285	81.2
Morrilton	35	7 876	1 775 161	81.5
Arkadelphia	36	7 506	1 782 667	81.9
Siloam Springs	37	7 285	1 789 952	82.2
Osceola	38	6 639	1 796 591	82.5
Clarksville	39	6 392	1 802 983	82.8
Nashville	40	6 270	1 809 253	83.1

See footnotes at end of table.

TABLE 2 - Continued
PLACES WITH 2,500 INHABITANTS OR MORE RANKED BY VOLUME OF RECEIPTS OF FIRMS SUBJECT TO FEDERAL INCOME TAX: 1982

[Includes only establishments with payroll. For meaning of abbreviations and symbols, see introductory text. For explanation of terms and comparability of 1977 and 1982 censuses, see appendix A. For information on geographic areas followed by Δ, see appendix F]

Geographic area	Rank[1]	Receipts ($1,000)	Cumulative Receipts ($1,000)	Cumulative Percent of State total	Geographic area	Rank[1]	Receipts ($1,000)	Cumulative Receipts ($1,000)	Cumulative Percent of State total
Arkansas—Con.					**Arkansas**—Con.				
Crossett	41	6 084	1 815 337	83.4	Alma	66	1 612	1 898 332	87.2
Lonoke	42	5 834	1 821 171	83.6	Hamburg	67	1 536	1 899 868	87.3
Lake Village	43	5 136	1 826 307	83.9	Stamps	68	1 513	1 901 381	87.3
Walnut Ridge	44	4 649	1 831 156	84.1	Bryant	69	1 505	1 902 886	87.4
West Helena	45	4 532	1 835 688	84.3	Beebe	70	1 457	1 904 343	87.5
McGehee	46	4 455	1 840 143	84.5	Greenwood	71	1 325	1 905 668	87.5
Brinkley	47	4 452	1 844 595	84.7	Carlisle	72	1 141	1 906 809	87.6
Sherwood	48	4 373	1 848 968	84.9	Augusta	73	1 071	1 907 880	87.6
Fordyce	49	3 973	1 852 941	85.1	Bald Knob	74	992	1 908 872	87.7
De Witt	50	3 852	1 856 793	85.3	Gurdon	75	934	1 909 806	87.7
Cabot	51	3 776	1 860 569	85.4	Waldron	76	831	1 910 637	87.7
Piggott	52	3 547	1 864 116	85.6	Barling	77	512	1 911 149	87.8
Berryville	53	3 507	1 867 623	85.8	Earle	78	313	1 911 462	87.8
Paris	54	3 266	1 870 889	85.9	Atkins	79	288	1 911 750	87.8
Pocahontas	55	3 142	1 874 031	86.1	Gosnell	80	-	1 911 750	87.8
Ozark	56	3 025	1 877 056	86.2	Ashdown	(X)	(D)	(X)	(X)
England	57	2 716	1 879 772	86.3	Dumas	(X)	(D)	(X)	(X)
Sheridan	58	2 697	1 882 469	86.5	Eudora	(X)	(D)	(X)	(X)
Dardanelle	59	2 609	1 885 078	86.6	Hoxie	(X)	(D)	(X)	(X)
Corning	60	2 478	1 887 556	86.7	Manila	(X)	(D)	(X)	(X)
Trumann	61	2 038	1 889 594	86.8	Marianna	(X)	(D)	(X)	(X)
Marion	62	1 868	1 891 462	86.9	Mena	(X)	(D)	(X)	(X)
Booneville	63	1 808	1 893 270	87.0	Monticello	(X)	(D)	(X)	(X)
Dermott	64	1 776	1 895 046	87.0	Prescott	(X)	(D)	(X)	(X)
Marked Tree	65	1 674	1 896 720	87.1	Warren	(X)	(D)	(X)	(X)
					Wynne	(X)	(D)	(X)	(X)

[1] Places with suppressed receipts (if applicable) are listed at end of table rather than by rank to avoid disclosing data for individual companies

million, occurred in Sebastian County[2]. These two counties, along with Washington, Craighead, Jefferson, Garland, Miller, Union, Independence, Benton, Crittenden and White Counties, provided over 76 percent of the total for Arkansas.

Overall, the number of service industry firms in Arkansas increased from 7,675 in 1977 to 10,118 in 1982, or by over 488 per year. Receipts of these firms rose from $564,163,000 in 1977 to $2,177,408,000 in 1982. This amounted to an annual rate of growth of over 30 percent (compounded). Moreover, the number of paid employees increased from 23,643 to 68,557 over the five-year period. Thus, these industries provided 44,914 new jobs for Arkansans between 1977 and 1982, or almost 9,000 new jobs per year. The increases in number of firms, receipts, and employment are what is to be expected with rising incomes and an increasingly service-oriented economy. However, perhaps even more than in other types of industries, the economic benefits associated with the service industries appear to be largely confined to a few of the state's seventy-five counties.

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[1] Includes one firm located in Barling.

[2] Excludes three firms located outside Fort Smith.

ECONOMIC EDUCATION: A CONTINUING COMMENTARY

IN THE PRIVATE-PUBLIC MIX, GOVERNMENT FAILURE

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In a recent issue of *Arkansas Business and Economic Review*, market failure was explored as an explanation for government's role in the economy. To complete the picture, we must also consider government failure to achieve efficiency and equity in economic decision-making.

An underlying phenomenon that explains behavior in the economics sphere is that people respond to incentives. The incentives at work may or may not lead to social benefit. In the private sector, motivations are for the firm to maximize profit, consumers to maximize utility, labor to maximize income and other groups to seek their own best interests. Under competitive conditions the individual response to market incentive works for the social benefit in all but exceptional cases where private cost and benefit and social cost and benefit diverge. Adam Smith designated this apparent paradox of individual self interest resulting in the social benefit as **the invisible hand**.

In the public sector, individuals also respond to incentives and seek utility maximization but these motivations may not lead to social benefit. We shall consider incentives and their outcomes for voters, elected officials and bureaucrats.

Incentives for individual voters in the public sector are often weak. In private decision-making, individuals seek benefit and bear cost directly; therefore, they find it worthwhile to gather information about the impending decision. In public decision-making, individuals may practice rational ignorance. Information that is the basis for reasoned decisions cost time and money. Where decisions are made collectively or by elected representatives and have little direct impact, it is sometimes rational to avoid information costs.

Motivations for elected officials do not necessarily lead to the social benefit. The primary incentive for public officials must be to win elections. Any planned course of action is predicted on winning the election. Elections are won by not offending voters; so there is a reason especially for an incumbent to maintain a middle-of-the-road stance on issues. Also would-be public officials seeking to overcome rational ignorance of voters need massive campaign funds. Most campaign funds necessarily come from special interest groups who have calculated that the benefit of a campaign contribution is greater than the cost.

On big issues that command national attention, voter awareness prevents undue influence by special interest groups. But on smaller issues, rational ignorance on the part of voters may prevail, and special interest groups have their benefit served. This is especially true where issues are complex: a small well-knit group benefits and the cost is borne by a widely dispersed, poorly organized general public. Import tariffs and quotas come to mind as examples of concentrated benefit and dispersed cost.

Incentives for government bureaucracy may also result in action that does not promote the public benefit. Unlike an elected official, bureaucracy is permanent and is the equivalent of monopoly in its sphere of action. Because bureaucrats cannot legally take economic profit, they have reasons to distinguish themselves in other ways. Since prestige in bureaucratic circles is awarded on the basis of the size of the budget and number of supervisory personnel in one's agency, the urge is to promote bureau growth as large as possible regardless of function. This generalization does not deny that there are many public servants who give societal obligations first priority.

Government failures like private market failures are not cause for despair. The often heard criticism, "If the government does it, it must be inefficient!" is too simplistic to describe the real world. There is a role for government and we must seek the optimum mix of public and private actions and responsibilities in this imperfect world.

SELECTED ARKANSAS AND U.S. ECONOMIC INDICATORS

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QUARTER I AND AN EARLY OUTLOOK FOR 1986

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In the twelve month period since the first quarter of 1985, Personal Income in Arkansas grew by 1.9 percent, or only 40 percent of the rate of growth in National Personal Income. More recently, however, Arkansas Personal Income appears to have grown at or above the National rate. (Revisions of the Personal Income data are to be expected; and other data, already available, differ from the rate of growth indicated by the first available Personal Income estimates of the U.S. Department of Commerce.)

Seasonally adjusted manufacturing wage and salary employment has remained virtually unchanged through the first five months of 1986. Over the same period, employment declined by 14,000. However, similar declines in the labor force resulted in a slight downward trend in the unemployment rate.

Consistent with early year increases in manufacturing employment, the value added by manufacture increased 1.1 percent in the first quarter. The lower levels of employment in April and, to some extent, May, indicate the performance in the manufacturing sector was not as good in the second quarter as it was earlier in 1986.

Cash receipts from farm marketings declined in Quarter I, 1986 to a level below that for any quarter in 1984 or 1985. At this point as has been the case for some time, the poultry industry is the only bright spot in this sector.

Traffic in the McClellan-Kerr Arkansas River Navigation System declined in the second quarter after an extremely sharp increase in the first three months of 1986. It now appears that traffic for the year may set a waterway record.

Residential construction contracts moved up sharply in the first quarter but remained below 1983 and early 1984 levels. Continued declines in some mortgage interest rates should lead to further increases in home building activity so that the total for the year could return to something in excess of $900 million.

On a quarter-to-quarter basis, nonresidential construction contracts declined substantially in the first quarter. Given existing over capacity and general economic conditions, there is no reason to expect improvement in this category over the year.

While the first income estimates for the year appear to indicate otherwise, economic activity in Arkansas is generally adrift in 1986. The agricultural sector has not improved and jobs in manufacturing have remained relatively unchanged through the first half of the year. Overall, the economy in Arkansas may perform somewhat more poorly than the national average in the near term with major improvements dependent on a recovery in agriculture.

LABOR FORCE AND EMPLOYMENT
ARKANSAS

(Seasonally adjusted)

Year	Month	Civilian Labor Force (Units)	Total Employment (Units)	Agricultural Employment (Units)	Manufacturing Wage and Salary Employment (Units)	Unemployment Rate (Percent)
1980		999,000	923,000	65,100	210,050	7.6
1981		1,030,000	936,000	64,100	212,100	9.1
1982		1,018,000	919,000	63,440	195,625	9.7
1983		1,025,700	920,730	62,395	199,880	9.5
1984		1,044,000	951,000	61,600	209,750	8.9
1985*		1,051,180	960,100	46,250	210,317	8.6
	May	1,040,980	953,140	46,640	209,340	8.4
	June	1,041,820	956,860	46,370	209,270	8.5
	July	1,049,540	958,610	46,130	209,960	8.5
	Aug.	1,050,720	961,630	45,900	210,020	8.3
	Sept.	1,053,730	963,180	45,620	209,220	8.4
	Oct.	1,053,170	963,120	45,460	209,170	8.4
	Nov.	1,059,800	967,580	45,540	209,850	8.6
	Dec.	1,067,630	973,260	45,540	210,880	8.8
1986						
	Jan.	1,061,260	976,150	46,180	213,850	8.3
	Feb.	1,057,010	973,570	46,280	213,950	8.2
	March	1,048,294	965,017	46,307	213,717	8.0
	April	1,046,741	960,435	46,293	213,010	8.2
	May	1,047,120	962,125	45,905	213,900	8.1

*Note: Labor Force and Employment data for the period 1985 forward have been reestimated by the Employment Security Division. The reestimation resulted in relatively large revisions in Agricultural Employment, with revisions to a less degree in Total Employment and Civilian Labor Force data. Consequently, the data for 1985 forward are not comparable to that for the prior period.

PERSONAL INCOME

Quarterly Changes in Personal Income, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I
Arkansas	+ 2.5	+ 2.9	− 2.2	+ 1.4	+ 1.8	+ 2.2
United States	+ 1.3	+ 1.7	+ 1.2	+ 0.5	+ 1.9	+ 1.1

Personal Income in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	14,640	15,892	17,862	19,191	19,957	22,406	24,310	24,774
Apr-Jun	14,774	15,851	18,078	19,155	20,383	22,410	23,784	
Jul-Sep	15,208	16,527	18,811	19,344	20,612	23,041	23,818	
Oct-Dec	15,640	17,005	18,912	19,812	21,173	23,614	24,249	
Annual	15,066	16,319	18,416	19,376	20,531	22,868	24,048	

INDUSTRIAL PRODUCTION

Quarterly Changes in Industrial Production
Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I
Arkansas	+ 1.1	− 0.2	+ 0.8	+ 1.2	+ 1.1
United States	+ 0.5	+ 0.3	+ 0.4	+ 0.5	+ 0.3

Value Added by Manufacture in Arkansas

(Seasonally adjusted, annual rate, Millions of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	5,902.0	6,553.6	7,167.6	7,474.8	7,884.9	8,837.4	9,316.7	9.582.4
Apr-Jun	6,052.2	6,415.0	7,388.1	7,569.1	8,131.9	8,968.3	9,293.7	
Jul-Sep	6,135.9	6,688.3	7,601.8	7,581.8	8,398.0	9,089.3	9,366.7	
Oct-Dec	6,299.6	6,942.7	7,589.5	7,746.9	8,522.0	9,213.2	9,480.0	
Annual	6,097.4	6,649.9	7,436.8	7,593.2	8,234.2	9,027.1	9,364.3	

CASH RECEIPTS FROM FARM MARKETINGS

Quarterly Changes in Cash Receipts, Arkansas and United States

(Seasonally adjusted, Percent)

	1984 Q-III thru 1984 Q-IV	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I
Arkansas	+ 4.5	+ 2.0	+ 3.4	+ 0.1	+ 7.1	– 18.7
United States	+ 4.3	– 4.7	– 4.3	+ 0.2	+ 22.3	– 19.2

Cash Receipts from Farm Marketings in Arkansas

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	3,442,336	3,410,760	2,990,044	3,354,452	2,833,156	3,408,036	3,263,042	2,941,868
Apr-Jun	3,059,744	3,554,600	2,806,176	3,795,964	2,641,692	3,165,680	3,374,386	
Jul-Sep	3,076,148	3,870,404	3,052,440	3,163,160	3,292,736	3,058,936	3,376,970	
Oct-Dec	3,143,660	4,576,516	2,987,076	3,200,636	2,801,852	3,197,856	3,617,159	
Annual	3,180,472	3,853,070	2,958,934	3,378,553	2,892,359	3,207,627	3,407,889	

WATERBORNE COMMERCE:
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

Quarterly Changes in Total and Internal Tonnages

(Seasonally adjusted, Percent)

	1984 Q-IV thru 1985 Q-I	1985 Q-I thru 1985 Q-II	1985 Q-II thru 1985 Q-III	1985 Q-III thru 1985 Q-IV	1985 Q-IV thru 1986 Q-I	1986 Q-I thru 1986 Q-II
Total	− 17.1	+ 13.0	+ 10.8	− 18.5	+ 66.1	− 27.1
Internal	− 19.4	+ 65.9	+ 8.0	− 14.2	+ 86.7	− 30.8

Freight Traffic

(Seasonally adjusted, annual rate, Thousands of short tons)

Time Period		Traffic Tonnages			
		Inbound	Outbound	Internal	Total[1]
1979		2,026	3,456	2,932	8,926
1980		1,611	4,643	2,408	9,133
1981		1,564	5,684	1,741	9,446
1982		1,520	4,611	1,561	8,258
1983		1,918	3,905	1,904	8,017
1984		2,128	4,264	2,433	9,490
1985[2]		2,103	3,191	2,521	8,335
	Jul-Sep	2,194	3,649	2,916	9,444
	Oct-Dec	1,846	2,920	2,501	7,700
1986	Jan-Mar	3,240	4,636	4,671	12,786
	Apr-Jun	2,369	2,917	3,233	9,319

[1] Total tonnage includes "through traffic."

[2] Sum of quarters does not equal annual totals because of moving seasonal adjustment factor.

ARKANSAS CONSTRUCTION CONTRACTS

Residential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	838,008	613,040	550,568	511,940	895,484	1,044,788	791,824[R]	873,188
Apr-Jun	645,112	564,516	642,712	598,212	919,996	975,436	775,466[R]	
Jul-Sep	756,032	696,460	548,380	689,232	908,188	900,232	701,506[R]	
Oct-Dec	575,136	686,040	585,608	780,880	901,384	773,368	795,934	
Annual	706,530	664,550	632,800	648,130	906,260	917,550	766,182	

Nonresidential Construction Contracts

(Seasonally adjusted, annual rate, Thousands of dollars)

	1979	1980	1981	1982	1983	1984	1985	1986
Quarter								
Jan-Mar	371,300	289,236	356,916	376,064	269,324	417,860	368,124[R]	445,068
Apr-Jun	420,520	349,804	278,808	210,008	353,504	437,076	411,933[R]	
Jul-Sep	296,012	396,316	259,592	317,844	389,684	543,684	477,483[R]	
Oct-Dec	441,984	390,148	311,048	220,548	473,460	481,360	563,974	
Annual	381,809	355,100	302,100	279,600	370,100	467,700	455,378	

[R] - revised

LABOR FORCE ESTIMATES
April 1986

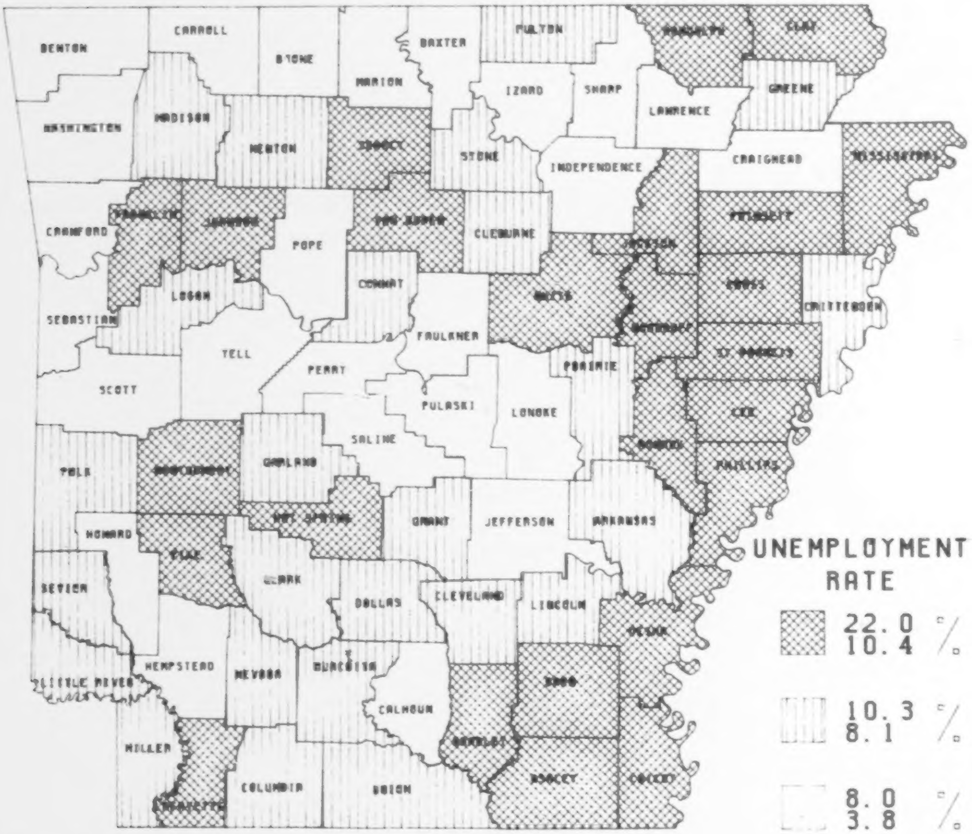
Area	Civilian Labor Force	Unemployment Rate	Total Employment
UNITED STATES	116,316,000	7.0	108,201,000
STATE OF ARKANSAS	1,045,000	8.2	959,100
Fayetteville-Springdale MSA	52,950	4.2	50,725
Fort Smith MSA	84,800	6.9	78,975
Little Rock-North Little Rock MSA	243,225	6.1	228,500
Pine Bluff MSA	35,975	7.9	33,150

County	Civilian Labor Force	Unemployment Rate	Total Employment	County	Civilian Labor Force	Unemployment Rate	Total Employment
Arkansas	9,900	8.8	9,025	Lee	4,625	15.1	3,925
Ashley	11,900	10.7	10,625	Lincoln	3,800	9.9	3,425
Baxter	10,300	4.9	9,800	Little River	5,250	10.0	4,725
Benton	43,550	4.1	41,775	Logan	8,550	9.1	7,775
Boone	13,475	6.7	12,575	Lonoke	18,250	6.6	17,050
Bradley	5,000	13.0	4,350	Madison	4,750	8.9	4,325
Calhoun	4,225	6.5	3,950	Marion	5,250	5.7	4,950
Carroll	9,700	6.4	9,075	Miller	18,450	8.7	16,850
Chicot	5,825	15.9	4,900	Mississippi	21,075	14.7	17,975
Clark	10,350	10.1	9,300	Monroe	4,525	11.6	4,000
Clay	7,950	12.6	6,950	Montgomery	3,025	11.6	2,675
Cleburne	7,775	10.0	7,000	Nevada	4,100	9.8	3,700
Cleveland	2,550	9.8	2,300	Newton	3,200	10.2	2,875
Columbia	12,375	9.5	11,200	Ouachita	13,150	10.1	11,825
Conway	7,500	10.3	6,725	Perry	4,050	8.0	3,725
Craighead	32,325	6.6	30,200	Phillips	10,825	14.3	9,275
Crawford	19,425	7.6	17,950	Pike	3,875	12.3	3,400
Crittenden	24,475	8.8	22,325	Poinsett	10,150	12.6	8,875
Cross	8,025	10.9	7,150	Polk	6,475	8.5	5,925
Dallas	4,225	8.3	3,875	Pope	20,500	6.7	19,125
Desha	6,850	10.9	6,100	Prairie	4,600	9.8	4,150
Drew	8,100	12.3	7,100	Pulaski	172,000	5.5	162,525
Faulkner	25,075	7.9	23,100	Randolph	7,000	11.1	6,225
Franklin	5,800	15.1	4,925	St. Francis	12,500	22.0	9,750
Fulton	3,725	9.4	3,375	Saline	27,900	7.4	25,825
Garland	31,525	8.6	28,800	Scott	5,275	3.8	5,075
Grant	5,550	9.0	5,050	Searcy	3,300	12.1	2,900
Greene	13,400	8.6	12,250	Sebastian	47,300	6.4	47,300
Hempstead	9,650	7.0	8,975	Sevier	6,625	9.1	6,025
Hot Spring	10,975	16.6	9,150	Sharp	5,625	8.0	5,175
Howard	5,750	7.4	5,325	Stone	4,050	9.9	3,650
Independence	14,575	7.9	13,425	Union	20,625	9.5	18,675
Izard	4,175	5.4	3,950	Van Buren	5,400	11.1	4,800
Jackson	8,475	13.6	7,325	Washington	52,950	4.2	50,725
Jefferson	35,975	7.9	33,150	White	23,575	11.1	20,950
Johnson	7,150	11.2	6,350	Woodruff	4,175	13.2	3,625
Lafayette	3,325	13.5	2,875	Yell	8,750	6.0	8,225
Lawrence	8,550	7.9	7,875				

Source: The Research and Statistics Section, Arkansas Employment Security Division.

LABOR FORCE ESTIMATES
APRIL 1986

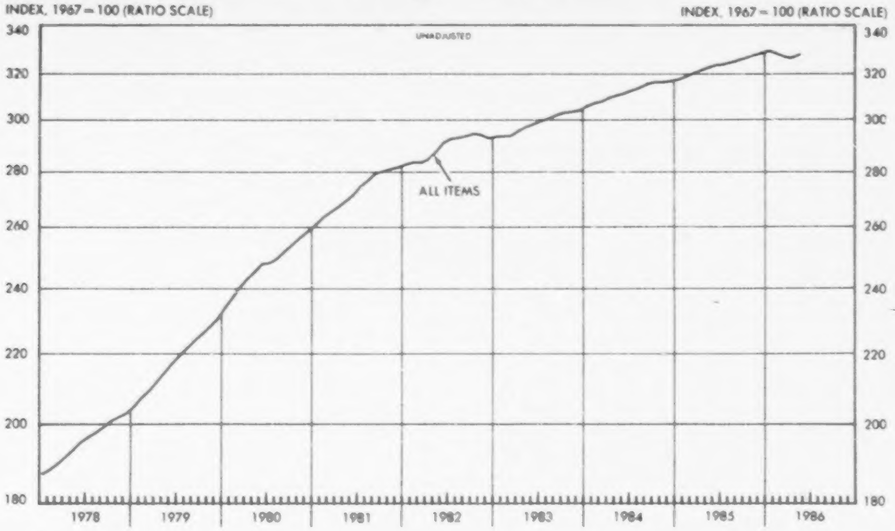
IN APRIL, ARKANSAS' CIVILIAN LABOR FORCE INCREASED 5,500 TO TOTAL 1,045,000. TOTAL EMPLOYMENT INCREASED 10,200 TO TOTAL 959,100. UNEMPLOYMENT FELL 4,700 TO TOTAL 85,900. OF THE 75 COUNTIES, SCOTT HAD THE LOWEST UNEMPLOYMENT RATE AT 3.8 PERCENT AND ST FRANCIS, THE HIGHEST AT 22.0 PERCENT. ALSO, THE UNEMPLOYMENT RATES IN 50 COUNTIES EQUALLED OR EXCEEDED THE STATE RATE. FOR THE MSAS, FAYETTEVILLE - SPRINGDALE HAD THE LOWEST UNEMPLOYMENT RATE AT 4.2 PERCENT AND PINE BLUFF HAD THE HIGHEST RATE AT 7.9 PERCENT. THE RATES FOR THE LITTLE ROCK-NORTH LITTLE ROCK AND THE FORT SMITH MSAS WERE 6.1 AND 6.9 PERCENT, RESPECTIVELY.


BENTON
CARROLL
BOONE
BAXTER
FULTON
MARION
IZARD
SHARP
LAWRENCE
GREENE
WASHINGTON
MADISON
NEWTON
STONE
INDEPENDENCE
CRAIGHEAD
CRAWFORD
POPE
CLEBURNE
CONWAY
SEBASTIAN
LOGAN
FAULKNER
TELL
PERRY
SCOTT
PRAIRIE
PULASKI
LONOKE
SALINE
CRITTENDEN
POLK
GARLAND
GRANT
JEFFERSON
ARKANSAS
HOWARD
CLARK
SEVIER
DALLAS
CLEVELAND
LINCOLN
HEMPSTEAD
NEVADA
OUACHITA
LITTLE RIVER
CALHOUN
MILLER
COLUMBIA
UNION
UNEMPLOYMENT RATE
22.0 %
10.4
10.3 %
8.1
8.0 %
3.8

UNIVERSITY OF ARKANSAS
COMPUTER GENERATED MAP

CONSUMER PRICES—ALL URBAN CONSUMERS

In May, the consumer price index for all urban consumers rose 0.2 percent, seasonally adjusted (0.3 percent not seasonally adjusted). The index was 1.6 percent above its year-earlier level.



SEE NOTE ON TABLE BELOW
SOURCE: DEPARTMENT OF LABOR

COUNCIL OF ECONOMIC ADVISERS

[1967 = 100, except as noted; monthly data seasonally adjusted, except as noted by NSA]

Period	All items [1] NSA	Food	Housing						Apparel and upkeep	Transportation			Medical care	Energy [2]	All items less food, energy, and shelter
			Total [1]	Shelter				Fuel and other utilities		Total [1]	New cars	Motor fuel			
				Total	Renters' costs (Dec. 1982 = 100)	Home-owners' costs (Dec. 1982 = 100)	Maintenance and repairs NSA								
Rel. imp. [3]	*100.0*	*18.5*	*37.9*	*22.3*	*7.3*	*14.4*	*0.5*	*8.1*	*5.0*	*21.4*	*3.4*	*5.5*	*6.5*	*11.3*	*48.0*
1978	195.4	211.4	202.8	210.4			233.0	216.0	159.6	185.5	153.8	196.3	219.4	220.4	179.1
1979	217.4	234.5	227.6	239.7			256.4	239.3	166.6	212.0	166.0	265.6	239.7	275.9	191.5
1980	246.8	254.6	263.3	281.7			285.7	278.6	178.4	249.7	179.3	369.1	265.9	361.1	208.3
1981	272.4	274.6	293.5	314.7			314.4	319.2	186.9	280.0	190.2	410.9	294.5	410.0	228.1
1982	289.1	285.7	314.7	337.0			334.1	350.8	191.8	291.5	197.6	389.4	328.7	416.1	245.6
1983	298.4	291.7	323.1	344.8	103.0	102.5	346.3	370.3	196.5	298.4	202.6	376.4	357.3	419.3	258.4
1984	311.1	302.9	336.5	361.7	108.6	107.3	359.2	387.3	200.2	311.7	208.5	370.7	379.5	423.6	271.2
1985	322.2	309.8	349.9	382.0	115.4	113.1	368.9	393.6	206.0	319.9	215.2	373.8	403.1	426.5	281.6
1985: May	321.3	308.4	348.4	379.7	114.7	112.6	366.2	392.8	205.3	320.2	214.5	377.7	399.8	429.7	280.2
June	322.3	309.1	349.4	381.1	115.3	112.9	367.6	394.7	205.9	320.2	215.0	378.8	402.6	430.3	280.9
July	322.8	309.2	350.3	383.1	115.8	113.6	367.8	394.2	205.6	320.3	215.2	379.1	404.3	429.4	281.4
Aug	323.5	309.6	351.7	385.3	116.3	114.3	370.6	393.6	205.9	319.8	215.7	377.4	406.6	427.6	282.1
Sept	324.5	310.7	352.2	386.1	116.7	114.5	368.7	394.4	206.8	319.3	216.2	375.2	409.0	426.8	282.6
Oct	325.5	311.1	353.3	387.9	117.5	114.9	368.5	393.7	207.7	320.5	217.0	374.3	410.9	425.8	284.1
Nov	326.6	313.2	355.2	390.5	118.2	115.7	372.7	395.4	208.4	322.6	217.7	377.4	413.0	428.4	285.4
Dec	327.4	315.2	356.2	391.9	118.5	116.2	373.7	396.5	208.3	323.9	218.4	379.4	415.7	430.3	286.2
1986: Jan	328.4	315.9	357.1	393.3	118.8	116.6	379.1	397.2	207.7	325.5	218.6	380.1	417.5	430.8	287.5
Feb	327.5	313.8	356.8	394.8	119.2	117.0	379.6	392.4	206.6	320.9	219.5	357.2	420.4	414.3	288.0
Mar	326.0	314.1	357.5	397.3	119.8	118.0	367.5	388.4	206.3	311.8	219.9	314.8	424.5	387.5	288.6
Apr	325.3	315.0	358.5	400.7	121.1	118.9	367.6	385.7	206.9	304.0	221.2	279.5	427.2	365.2	289.1
May	326.3	316.4	358.2	401.0	121.2	119.1	367.1	382.3	206.5	304.9	223.0	286.4	429.8	366.2	289.4

[1] Includes items not shown separately.

[2] Fuel oil, coal, and bottled gas, gas (piped) and electricity, and motor fuel. Motor oil, coolant, etc. also included through 1982.

[3] Relative importance, December 1985.

NOTE.—Data beginning 1983 incorporate a rental equivalence measure for homeownership costs and therefore are not strictly comparable with figures for earlier periods.

Source: Department of Labor, Bureau of Labor Statistics.

REVIEW EDITORIAL POLICY STATEMENT

The Arkansas Business and Economic Review is dedicated to information relevant to the business and economic environment of Arkansas. Thus, the editor invites manuscripts in the following general subject areas for consideration for publication:

1. Problems and issues of the Arkansas business community and economy;
2. Regional and industrial problems that have implications for the Arkansas economic community;
3. National business and economic issues of general interest to the people of Arkansas;
4. Business and economic theory; and
5. Articles of interest to both practitioners and academics in business.

Each manuscript should be double-spaced and submitted in triplicate. The length of the article should not exceed 20 pages including tables, appendices and references. Each chart or table should be camera ready, that is, an original on a separate page. References are to be listed on a separate page at the end of the submitted article and are to be numbered sequentially in order of textual citation with a corresponding superscript at the point of reference. The listing will be used as "Endnotes" to the published article and should be in footnote format.

For example, as a minimum, each endnote item will indicate:

For a book: list (as appropriate) author's first name, middle initial, and surname; the title of the book; publication data including place, publisher, and date; and the page number(s) in the citation.

For an article in periodical: list (as appropriate) the author's first name, middle initial, and surname; title of the article; name of the periodical; volume number or month and year for the issue; and page number(s) in the citation.